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Divergence of Opinion and Risk: An Empirical Analysis of the Ex Ante Beliefs of Institutional Investors

Charles M. Linke Srinivasan Kannan David A. Whitford J. Kenton Zumwalt



TABLE - 4 1 31

|  |              | PRODUCT      | MOHENT       | CORRE         | CORRELATIONS |              | R 1981) |               |               |
|--|--------------|--------------|--------------|---------------|--------------|--------------|---------|---------------|---------------|
|  | 2300         | 277          | ang          | 574           | Die          | 250          |         |               |               |
|  | RB6±<br>     | 513<br>      | RB7<br>      | 214           |              | H88          | MB4*    | IA1±          | MB5           |
| BII  | 0.0692       | 0.1862       | 0.1970       | 0.3447        | 0.0206       | 0.4297       | 0.1244  | 0.1008        | 0.3005        |
|  | 80<br>0.2710 | 67<br>0.0660 | 92<br>0.0300 | 152<br>0.0010 | 86<br>0.4250 | 63<br>0.0010 |         | 164<br>0.0990 | 100<br>0.0010 |
| 0011   |              | 0.0604       |              |               |              | 0.0294       |         | 0.4706        | 0.2327        |
| RB1±   | 134          |              | 152          | 205           | 129          | 99           | 127     | 220           | 167           |
|  | 0.0010       |              |              |               | 0.0010       |              |         |               |               |
| RB2  | 0.2315       |              | 0.4095       |               | 0.1912       |              |         | 0.2263        | 0.5364        |
|  | 130          |              | 158          |               | 141          | 106          |         | 207           | 165           |
| 4  | 0.0040       | 0.0010       | 0.0010       | 0.0010        | 0.0120       | 0.0010       | 0.0030  | 0.0010        | 0.0010        |
| MB1  | 0.1947       | 0.3148       | 0.4174       | 0.1633        | 0.1070       | 0.2783       | 0.1258  | 0.1091        | 0.3145        |
| · market and   | 183          | 204          | 206          | 333           | 199          | 146          | 198     | 369           | 229           |
| A - the particular of  | 0.0040       | 0.0010       | 0.0010       | 0.0010        | 0.0660       | 0.0010       | 0.0390  | 0.0180        | 0.0010        |
| RB3*   | 0.5789       |              | 0.0946       |               |              |              |         |               | 0.1558        |
|  | 141          |              | 159          |               | 137          | 109          | 139     |               | 169           |
|  | 0.0010       | 0.0010       | 0.1180       | 0.0010        | 0.0160       | 0.1700       | 0.0010  | 0.0010        | 0.0220        |
| RB4  | 0.1398       | 0.4940       | 0.4660       | 0.3464        | 0.1583       | 0.5952       | 0.1046  | 0.1153        | 0.5573        |
|  | 127          | 122          | 144          | 180           | 120          | 91           | 134     | 193           | 147           |
|  | 0.0580       | 0.0010       | 0.0010       | 0.0010        | 0.0420       | 0.0010       | 0.1140  | 0.0550        | 0.0010        |
| RB5*   | 0.6448       | 0.1541       | 0.0885       | 0.4533        | 0.1008       | 0.0828       | 0.7073  | 0.6928        | 0.0460        |
| 1  | 74           | 58           | 85           |               | 68           |              |         | 103           | 81            |
| a distribution of the second o | 0.0010       | 0.1240       | 0.2100       | 0.0010        | 0.2070       | 0.2660       | 0.0010  | 0.0010        | 0.3420        |
| MB2  | 0.0899       | 0.3508       | 0.4935       | 0.1855        | 0.0007       | 0.5466       | -0.0345 | -0.0216       | 0.3642        |
|  | 172          | 187          | 212          | 310           | 199          | 142          | 183     | 343           | 230           |
| į  | 0.1200       | 0.0010       | 0.0010       | 0.0010        | 0.4960       | 0.0010       | 0.3220  | 0.3450        | 0.0010        |
| BIS#   | 0.4494       | 0.0709       | 0.0819       | -0.0256       | 0.3312       | -0.0480      | 0.4754  | 0.3160        | 0.0318        |
| +  | 113          | 124          | 135          | 202           | 136          | 93           | 127     | 213           | 144           |
|  | 0.0010       | 0.2170       | 0.1730       | 0.3590        | 0.0010       | 0.3240       | 0.0010  | 0.0010        | 0.3520        |
| MB3  | 0.0216       | 0.3322       | 0.5350       | 0.1984        | -0.1047      | 0.5712       | 0.1198  | 0.1720        | 0.5062        |
|  | 130          | 121          | 148          | 200           | 128          |              | 128     | 221           | 153           |
|  | 0.4040       | 0.0010       | 0.0010       | 0.0020        | 0.1200       | 0.0010       | 0.0890  | 0.0050        | 0.0010        |

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Divergence of Opinion and Risk: An Empirical Analysis of the <a href="Ex Ante">Ex Ante</a> Beliefs of Institutional Investors

Charles M. Linke, Professor Department of Finance

Srinivasan Kannan, Assistant Professor Texas A & M University

David T. Whitford, Associate Professor Department of Finance

J. Kenton Zumwalt, Associate Professor Department of Finance

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#### Abstract

Beginning in October 1981, the Southwestern Bell Corporation (SWB) initiated the construction of an extremely interesting data base which consisted of <u>ex ante</u> returns for 19 major institutional investors. This research reports empirical findings on this data base. The data cover a period of almost two and onehalf years. Among other things the data reveal that the level of homogeneity of institutional investors' return expectations in not high. However, their expectations are in general positively correlated. The average or consensus expectations of the analysts generally conform to the traditional risk-return trade-offs posited by the theory of financial economics. Notwithstanding, when the three risk proxies used in this study are used as independent variables in explaining levels of expected consensus returns, measures of systematic risk and divergence of opinion are positively related to expected return. The third, the standard deviation of previous market returns, is negatively related to expected returns. Finally during the early months of the study, the expectations of individual analysts generally conform to the general paradigm of risk-return pricing. In the later months of the study period, the evidence supporting a positive risk-return trade-off was less convincing.



Divergence of Opinion and Risk: An Empirical Analysis of the Ex Ante Beliefs of Institutional Investors

#### Rationale for the Study

The theory of financial economics posits that security prices are determined by expected returns and the risk associated with those returns. Central to the theory of many of the asset pricing models is the assumption of homogeneous beliefs among investors. Empirical evidence regarding investors' expectations, however, points to the contrary. Lease, Lewellen, and Schlarbaum (1974) indicate that investors hold distinctly different portfolios and that this is due to a host of individual perceptions and attitudes.

Sharpe (1970) points out the necessity for considering heterogeneous beliefs to justify the presence of short sales in the market. Miller (1977), Williams (1977), Rabinovitch and Owen (1978), Jarrow (1980), Figlewski (1982), and Varian (1985) have shown that heterogeneity of investors' beliefs can have an impact on stock price movements. Mayshar (1983) argues that divergent beliefs not only exist but are essential in capital markets because of their association with endogenous limitations on the number of active market participants. Thus it appears that heterogeneity of investor beliefs may provide useful insights into investors behavior toward risky financial assets.

#### Previous Empirical Studies

Previous empirical studies using expectational data are relatively few in number primarily due to data limitations. Malkiel and Cragg (1970) were among the first to use ex ante data from security analysts in order to investigate the structure of share prices. Their work [see also Cragg and Malkiel (1968) and (1982)] analyzed data collected during the decade of the 1960s. Friend, Westerfield, and Granito (1978) also used annual ex ante data obtained from financial institutions during the mid 1970s. Later Bart and Masse (1981) investigated Miller's (1977) proposition that uncertainty, divergence of opinion, and risk are inexorably linked, and together play a major role in determining the price of risky assets. Their study utilized survey data collected on three widely held and actively traded Canadian stocks. Peterson and Peterson (1982a) and (1982b) utilized Lynch, Jones and Ryan's Institutional Brokers Estimate System (IBES) survey data to study Miller's hypothesis linking divergence of opinion and risk. Peterson and Waldman (1984) also used IBES data to analyze the relationship between short sales and heterogeneous expectations. More recently a group of studies by Brigham, et al. (1985), Vander Weide and Carleton (1985), Harris (1986), Swidler (1985), and Timme and Eisemann (1985) have used IBES data in analyzing the role of analysts' expectations in a variety of issues.

#### Problems with the IBES Data

One of the major problems with the studies that have used

IBES data is that the IBES expected returns focus upon expected (typically five year) growth rates in earnings per share (EPS). This growth rate is then imbedded into a constant growth, dividend valuation model in order to obtain an expected return estimate. An interesting exception to this methodology is a paper by Dimson and Marsh (1984) in which United Kingdom security analysts, using a one year forecasting horizon, predicted the excess returns for a group of stocks. Dimson and Marsh assumed that the capital asset pricing model holds and that the market's excess return is zero. Their study among other things found on average a low correlation, .08, among institutional return forecasts, indicating a surprisingly high level of heterogeneity among the analysts.

#### A New Data Base

Beginning in October 1981, the Southwestern Bell Corporation (SWB) initiated the construction of an extremely interesting data base which consisted of <u>ex ante</u> returns for 19 major institutional investors, i.e. bank trust departments, investment bankers, brokerage houses, and an investment advisory firm. There were eight regional banks, five money center banks, five major brokerage-investment banking houses, and one investment advisory firm which originally provided input into the data base.

The total assets of the banks ranged from \$2 billion to \$100 billion, with trust income or commissions in the \$10 million

to \$1 billion range. Thus there is a reasonable representation of both "buy" side and "sell" side analysts in the data base.

Seventeen of these nineteen firms or "analysts" provided monthly updates of their return expectations for approximately two and one-half years.¹ However, during this period two of brokerage-investment banking firms stopped supplying monthly estimated returns, and thus these firm's monthly expected returns do not cover the entire period. Nevertheless the data base contains monthly expected returns on a sample of approximately 500 firms during the period October 1981 through May 1984.

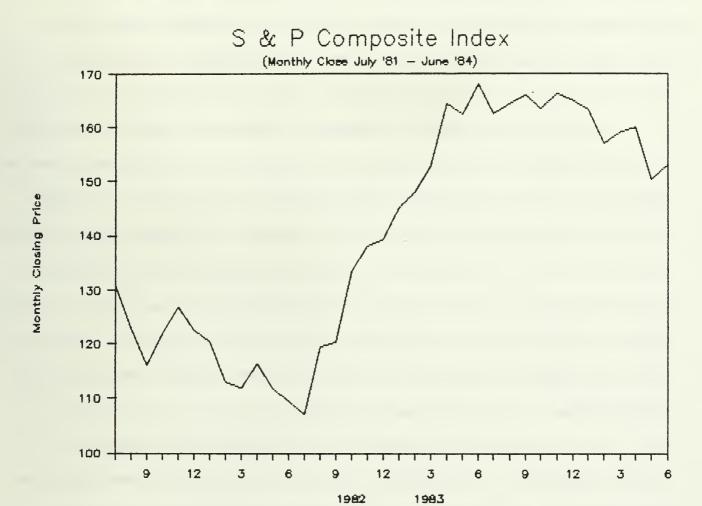
As seen in Figure 1, this period is characterized by three distinct stock price patterns: two somewhat choppy downward moves

Insert Figure 1 about here

(July '81 - July 82 and May '83 - June '84) and a major bull market (August '82 - April '83). These distinctly different periods of market movement undoubtedly had an impact on the analysts' expectations. One of the goals of this study is to investigate these interactions.

Because of the sensitive nature of these data, the

<sup>&</sup>lt;sup>1</sup> Use of the term analyst in referring to a specific institutional investor, broker-investment banker, or investment advisory firm is admittedly inaccurate. In reality most of these organizations employ literally dozens of security analysts and portfolio managers who generate the <u>ex ante</u> returns contained in the SWB data base.



institutional investors who provided the data are not identified. However, a generic classification of the type of analyst is provided, [i.e. regional bank (RBs), money center bank (MBs), brokerage house-investment banker (BIs), and/or investment advisory (IA)].

The SWB data contain expected returns derived in two ways. Like the IBES estimates, seven of the analysts provided five-year EPS growth estimates which were used to derive their expected returns using a constant growth, dividend valuation model. These analysts add their estimated constant growth rate in dividends (or earnings) per share to a forward looking annualized dividend yield in order to determine an expected return for an individual firm. Throughout the paper these constant growth analysts will be referred to as "starred" analysts.

In contrast the remaining twelve analysts used a "multi-stage" or flexible growth model to derive their expected returns. These analysts typically had two (or more) horizon periods over which they would make period specific dividend growth rate projections. The varying growth rates would in turn be used to generate a stream of future dividends. The multi-stage expected return is simply the discount rate that equates the present value of this stream of dividends with the current stock price. Throughout the paper the multi-stage analysts will be referred to as "unstarred" analysts.

#### Empirical Analysis: An Introduction and Overview

The structure of this research is divided into two parts.

The first analyzes the correlation structure of each analyst's expected returns for all of the possible pair-wise or jointly followed companies included in the SWB data base during October 1981, April 1982, October 1982, April 1983, and October 1983. This analysis uses product-moment and Spearman's rank order correlation techniques to measure the degree to which heterogeneity is present in the structure of the analysts' monthly expectations. Further by analyzing the correlations through time, it is possible to study the degree to which these correlations change over time.

The second phase of the study analyzes the nature of the return data for all of the companies followed by each of the nineteen (and later seventeen) analysts. This analysis is repeated for the five periods noted earlier. In addition cross-sectional regression analysis of the analysts' average expected returns are provided. Explanatory variables in this set of regressions will include a Blume (1975) sixty-month trend adjusted beta, a measure of analysts' divergence of opinion (the standard deviation of expected returns), the standard deviation of historical returns calculated over the previous sixty months, and the actual returns for each security during the previous sixty months. Finally, cross-sectional analysis examining the risk-ex ante return structure of the firms followed by each analyst is also presented.

The purpose of the second phase of the research is to ascertain the degree to which widely accepted measures of

systematic and unsystematic risk are linearly associated with the average (consensus) and/or an individual analyst's expected returns.

Given that most of the previous studies in this area have relied upon earnings expectations to proxy return expectations, the results of this study, thanks to the uniqueness of the SWB data base, provide potentially more realistic insights into exante risk-return relationships.

#### Empirical Results -- How Representative Are the Data?

Before embarking on the first phase of the empirical investigation, prudence suggested that an analysis of the extent to which the individual firms included in the SWB data base are representative of common stock returns in general be undertaken. To this end, means, standard deviations, and correlations were calculated for four indices over a 360 month period beginning in January 1952 and ending in December 1981. The four indices included value weighted and equally weighted indices of the firms in the SWB data base as well as two corresponding indices obtained from the University of Chicago's Center for Research in Security Prices (CRSP) monthly return files. Of the 505 firms in the data base, 25 were not listed on the CRSP monthly return file on December 1981. Of the 480 firms that had returns for December 1981, 209 were listed on the CRSP file on January 1952. Thus the SWB indices consisted of 209 firms initially; however, by 1981 these indices were comprised of 480 firms.

Table 1 contains the results of this analysis. The SWB

indices' average monthly returns are slightly larger than the CRSP indices, but this difference is <u>not</u> significantly significant at the five percent level. The correlation between the equally weighted indices is .95642, while the value weighted indices had a correlation of .99209. These results provide fairly strong support for the hypothesis that the firms included in the SWB data base are a representative sample of common stock returns contained on CRSP monthly return files.

### Empirical Results -- How Heterogeneous are Analysts' Expectations?

Even though there are approximately 500 firms in the SWB data base, it is important to emphasize that not all of the firms were followed by all analysts. Instead of investigating the correlation structure of a small sub-sample of firms followed by a majority of analysts, a list of firms followed by each analyst in each month was compiled. From these lists it was possible to prepare additional lists of firms followed by any combination of analysts in any month. Pair-wise correlations (both Spearman rank order and product moment) of all possible combinations of jointly followed firms were computed for the five months noted earlier. Because of the bulkiness of these data, they are presented in Appendix A in Tables A 1 (Oct. '81), A 7 (Apr. '82), A 13 (Oct. '82), A 19 (Apr. '83), and A 25 (Oct. '83). Each of

Table 1

SWB and CRSP Indices Statistics

|                    | SWB In              | dices             | CRSP Ind            | dices                    |
|--------------------|---------------------|-------------------|---------------------|--------------------------|
|                    | Equally<br>Weighted | Value<br>Weighted | Equally<br>Weighted | Value<br><u>Weighted</u> |
| Arithmetic Mean    | .01275              | .01220            | .01122              | .00874                   |
| Standard Deviation | .04603              | .04066            | .05029              | .04027                   |
| Correlations       | p                   |                   |                     |                          |
| SWB                |                     |                   |                     |                          |
| Equally Weighted   |                     | .95155            | .95642              | .97469                   |
| Value Weighted     |                     |                   | .86207              | .99209                   |
| CRSP               |                     |                   |                     |                          |
| Equally Weighted   |                     |                   |                     | .90981                   |

the tables is comprised of four panels. Panels a and d contain both product moment (below the diagonal) and Spearman's rank order (above the diagonal) correlations. Panels b and c contain only product moment and rank order correlations, respectively. The top and left margins of the panels identify the type of analyst providing the returns for either that column or row. The number of jointly followed firms and a level of statistical significance is provided for each correlation.

Because of the volume of the data in Appendix A, a summary of this Appendix is provided in Table 2. The data for each month are placed into four catagories. To fall in the first category, a correlation must be positive and statically different from zero at the five percent level of confidence. The second category contains all positive correlations that are not statistically different from zero at the five percent level of confidence. The third category captures all correlations that are negative and are statistically different from zero at the five percent level. The final group contains all correlations that are negative but are not statistically different from zero. Table 2 contains a month by month summary of the Spearman and product moment correlations both by count an percentage.

Generally speaking, the percentages of the various

The secular decline in the number of possible "jointly followed" firms results from two analysts dropping our of the SWB data collection process. Data from broker-investment banking firm # 1 (BI1) were not available after October 1982. Similarly data from broker-investment banker firm # 5 (BI5) were not available after April 1982.

Classification of Correlation Structures of Expected Return Estimates Among All Combinations of Analysts\*

Table 2

### Spearman's Rank Order Correlation

|  | Oct |      | Apr |         | 0ct   |        | Apr   |       | 0ct |      |
|--|-----|------|-----|---------|-------|--------|-------|-------|-----|------|
|  | 8   |      | 82  |         | 82    |        | 83    |       | 83  |      |
|  | #   | %    | #   | %       | #     | %      | #     | %     | #   | %    |
| positive and statistically significant | 116 | 67.8 | 145 | 84.8    | 116   | 75.8   | 97    | 71.3  | 90  | 66.2 |
| positive but not                       |     |      |     |         |       |        |       |       |     |      |
| statistically                          | 40  | 23.4 | 20  | 11.7    | 27    | 17.6   | 24    | 17.7  | 25  | 18.4 |
| significant                            |     |      |     |         |       |        |       |       |     |      |
| negative and                           |     |      |     |         |       |        |       |       |     |      |
| statistically                          | 1   | • 6  | 3   | 1.75    | 1     | • 7    | 0     | 0     | 7   | 5.1  |
| significant                            |     |      |     |         |       |        |       |       |     |      |
| negative but not                       |     |      |     |         |       |        |       |       |     |      |
| statistically                          | 14  | 8.2  | 3   | 1.75    | 9     | 5.9    | 15    | 11.0  | 14  | 10.3 |
| significant                            |     |      |     |         |       |        |       |       |     |      |
| Total                                  | 171 | 100% | 171 | 100%    | 153   | 100%   | 136   | 100%  | 136 | 100% |
|  |     |      |     |         |       |        | 200   | 200.0 |     |      |
|  |     |      |     |         |       |        |       |       |     |      |
|  |     |      | Pr  | oduct 1 | Momen | t Corr | elati | ons   |     |      |
|  |     |      |     |         |       |        |       |       |     |      |

|  | Oct<br>81<br># % |      | Apr<br>82<br># % |      | 0ct<br>82<br># % |      | Apr<br>83<br># % |      | 0ct<br> |      |
|--|------------------|------|------------------|------|------------------|------|------------------|------|---------|------|
| positive and statistically significant     | 118              | 69.0 | 141              | 82.4 | 121              | 79.1 | 88               | 64.7 | 93      | 68.4 |
| positive but not statistically significant | 38               | 22.2 | 22               | 12.9 | 20               | 13.1 | 37               | 27.2 | 30      | 22.1 |
| negative and statistically significant     | 0                | 0    | 2                | 1.2  | 1                | • 6  | 0                | 0    | 7       | 5.1  |
| negative but not statistically significant | 15               | 8.8  | 6                | 3.5  | 11               | 7.2  | 11               | 8.1  | 6       | 4.4  |
| Total                                      | 171              | 100% | 171              | 100% | 153              | 100% | 136              | 100% | 136     | 100% |

<sup>\*</sup>The critical level of statistical significance is 5 percent.

categories are fairly stable through time. Also the degree of homogeneity of beliefs is not high, although quite clearly the majority (approximately two-thirds) of the correlations are positive and statistically different from zero. A perusal of the Tables in Appendix A shows that only a small proportion of the correlations are greater than .50. On the other hand, only a small number of the correlations are negative, and of that number, less than one percent (on average) of the total correlations are negative and statistically significant. Thus the data suggest that roughly two-thirds of the analysts agree to a moderate degree on the relative rankings of expected returns for the firms that they "jointly follow." Because the remaining correlation categories are either not statistically different from zero or are negative in a statistical sense, one must conclude that these analysts' beliefs are quite heterogeneous.

## Empirical Analysis--How Well Are "Consensus" Expectations Explained by Traditional Risk Measures?

As noted earlier, the second phase of the study cross sectionally analyzes the expected returns of the nineteen and later seventeen analysts' expected returns. The analysis is repeated for the same five months analyzed earlier. Explanatory-risk proxy variables were a Blume (1975) sixty-month trend

In addition to the variables noted here, other risk proxies or similar proxies measured over different time horizons were also investigated. For example comparable estimates for a thirty month Blume adjusted beta as well as sixty month and thirty month Vasicek (1973) Bayesian betas were estimated. In addition, historical return standard deviations for the preceding thirty months were estimated. A detailed investigation of these

adjusted beta, a measure of analysts' divergence of opinion (the standard deviation of the expected return for a given stock), and the standard deviation of the historical returns for a given security calculated over the sixty months immediately preceding the month of the expectation. The return data used in the calculations of the trend adjusted betas and other risk proxies were obtained from the CRSP monthly return files. The beta calculations, like the standard deviation of historical returns, were estimated over the sixty months immediately preceding the month of the expectation.

The first phase of the risk-return analysis focuses on the consensus or average ex ante returns. This phase of the study also investigates the extent to which starred (or constant growth) analysts differ from the unstarred (or multi-phase growth analysts). The results of the regressions undertaken in this phase are given in Appendix B. In this Appendix Tables B1(a), B1(b), and B1(c) summarize the October 1981 expectations' regression results for all analysts, only starred analysts, and only unstarred analysts, respectively. Similarly corresponding regressions by analyst type are given in Tables B7, B13, B19, and B25, for April '82, October '82, April '83, and October '83, respectively. The variables used to explain the average expectations were:

alternative measures indicated that the corresponding risk proxies were remarkably similar. In general the risk proxy estimates reported in the body of the paper had the highest level of explanatory power vis-a-vis their alternatives.

Beta - a sixty month, trend adjusted, "Blume" beta

DIVOP - the standard deviation of the analysts' expected returns

CRRET1 - the arithmetic average of historical monthly returns during the preceding sixty months

CRSTD1 - the standard deviation of historical returns during the preceding sixty months

CRR1A - the annualized equivalent of CRRET1

CRR1G - the geometric average monthly return during the preceding sixty months

An examination of the Tables in Appendix B reveals a large difference in the number of individual firms included in the cross sectional analysis. These differences are directly attributable to the estimation property requirements of the divergence of opinion risk proxy variable, i.e. the standard deviation of expected return. For a firm to be included in the "consensus" analysis, it must (1) be listed on CRSP monthly return tape and (2) be followed by at least five of the analysts (within a given analyst classification) in the SWB data base. The decision to estimate a standard deviation of expected return based upon a minimum of five observations is from a statistical viewpoint clearly less than optimal. However, a trade-off was clearly necessary if an analysis of this divergence of opinion risk proxy was to be undertaken. Thus in any given month, the "all analyst" category would contain all of the firms in the starred and unstarred regressions for that month.

Because of the vast number of regression runs undertaken, it is not possible to discuss the details of the results due to

space limitations. However, Table 3, Table 4, and Table 5
summarize the risk-return regression results on a month by month
basis for the all, starred, and unstarred analyst catagories,
respectively. With the exception of April 1983, there is
overwhelmingly positive and statistically significant riskreturn relationship between the individual risk proxies and
consensus expectations. This relationship is present in all
analyst categories.

When one compares the cross-sectional relationships between consensus expected returns and more than one risk proxy, several interesting relationships emerge. With the exception of April 1983, there are statistically positive relationships between expected return, beta, and divergence of opinion for all analyst categories. However, the regressions which analyze expected returns as a function of beta and standard deviations of historical returns as well a expected returns as a function of beta, standard deviation of returns, and divergence of opinion reveal some surprising results. Specifically when one "controls" for systematic risk and/or divergence of opinion, the is often a negative and statistically significant relationship between expected return and the standard deviation of recent rates of return. These trends are most prominent for the all analyst category.

An overview of the results contained in Appendix B reveal two additional key insights. First the level of explanatory power of all of the risk return relationship tests is low. Specifically

Table 3

Summary of Positive and Statistically Significant Risk-Consensus Expected Return Relationships (All Analysts)

|                         | Month/Year |     |       |       |     |             |  |  |  |
|-------------------------|------------|-----|-------|-------|-----|-------------|--|--|--|
| Risk Proxy              |            | Oct | Apr   | 0ct   | Apr | 0ct         |  |  |  |
| Independent Variable(s) |            | 81  | 82    | 82    | _83 | _83         |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
| Beta                    |            | yes | yes   | yes   | yes | yes         |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
| DIVOP                   |            | yes | yes   | yes - | yes | yes         |  |  |  |
|                         |            | ··  |       |       |     |             |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
| CRSTD                   |            | yes | yes   | yes   | no  | yes         |  |  |  |
|                         |            |     |       |       |     | <del></del> |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
| Beta                    |            | yes | yes   | yes   | no  | yes         |  |  |  |
| DIVOP                   |            | yes | yes   | yes   | yes | yes         |  |  |  |
|                         |            |     | ····· |       |     |             |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
| Beta                    |            | yes | yes   | yes   | yes | yes         |  |  |  |
| CRSTD                   |            | *   | **    | **    | **  | *           |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |
| Beta                    |            | yes | yes   | yes   | yes | yes         |  |  |  |
| DIVOP                   |            | yes | yes   | yes   | yes | yes         |  |  |  |
| CRSTD                   |            | **  | **    | **    | **  | **          |  |  |  |
|                         |            |     |       |       |     |             |  |  |  |

<sup>\*</sup>Negative but not statistically significant.

<sup>\*\*</sup>Negative and statistically significant at the 5% level.

Table 4

Summary of Positive and Statistically Significant Risk-Consensus Expected Return Relationships (Starred or Constant Growth Analysts)

|                         | Month/Year       |                  |                |                |                 |  |  |  |  |  |
|-------------------------|------------------|------------------|----------------|----------------|-----------------|--|--|--|--|--|
| Risk Proxy              | Oct              | Apr              | Oct            | Apr            | Oct             |  |  |  |  |  |
| Independent Variable(s) | 81               | 82               | 82             | 83             | 83              |  |  |  |  |  |
| Beta                    | yes              | yes              | yes            | yes            | yes             |  |  |  |  |  |
| DIVOP                   | yes              | yes              | yes            | yes            | yes             |  |  |  |  |  |
| CRSTD                   | yes              | yes              | yes            | yes            | yes             |  |  |  |  |  |
| Beta<br>DIVOP           | yes<br>yes       | yes<br>yes       | yes<br>yes     | yes<br>no      | yes<br>yes      |  |  |  |  |  |
| Beta<br>CRSTD           | yes<br>*         | yes<br>*         | yes<br>no      | no<br>no       | no<br>no        |  |  |  |  |  |
| Beta<br>DIVOP<br>CRSTD  | yes<br>yes<br>** | yes<br>yes<br>** | no<br>yes<br>* | no<br>no<br>no | no<br>yes<br>no |  |  |  |  |  |

<sup>\*</sup>Negative but not statistically significant.
\*\*Negative and statistically significant.

Table 5

Summary of Positive and Statistically Significant Risk-Consensus Expected Return Relationships (Unstarred or Multi-stage Growth Analysts)

|                         | Month/Year |          |          |             |     |  |  |  |
|-------------------------|------------|----------|----------|-------------|-----|--|--|--|
| Risk Proxy              | Oct        | Apr      | Oct      | Apr         | 0ct |  |  |  |
| Independent Variable(s) | 81         | 82       | 82       | 83          | 83  |  |  |  |
| Beta                    | yes        | yes      | yes      | no          | yes |  |  |  |
| DIVOP                   | yes        | yes      | yes      | no          | yes |  |  |  |
| CRSTD                   | yes        | yes      | yes      | *           | yes |  |  |  |
| Beta                    | yes        | yes      | yes      | *           | no  |  |  |  |
| DIVOP                   | yes        | yes      | yes      | no          | yes |  |  |  |
|                         |            |          |          |             |     |  |  |  |
| D. c.                   |            |          |          |             | *   |  |  |  |
| Beta<br>CRSTD           | yes<br>**  | yes<br>* | yes<br>* | no<br>*     | no  |  |  |  |
| CKSID                   |            |          |          |             | 110 |  |  |  |
|                         |            |          |          | <del></del> |     |  |  |  |
| Beta                    | yes        | yes      | yes      | no          | no  |  |  |  |
| DIVOP                   | yes        | yes      | yes      | yes         | yes |  |  |  |
| CRSTD                   | **         | **       | *        | *           | no  |  |  |  |

<sup>\*</sup>Negative but not statistically significant.

<sup>\*\*</sup>Negative and statistically significant.

none of the adjusted r-squared values of the regressions is greater than .50, and only 10.67 percent of these regressions have an adjusted r-squared greater than .36. Clearly the ability of commonly accepted risk measures (and historical returns) to explain levels of expected returns is not overwhelmingly high.

The relatively low level of explanatory power of risk

...

proxies to explain expected returns raised an interesting

question. Specifically, how well could historical risk proxies

explain ex post returns? Based upon adjusted r-squared values,

betas and standard deviations of market returns (both

individually and jointly) provide a higher level of explanatory

power for ex post average returns vis-a-vis ex ante consensus

returns.

# Empirical Analysis -- How Well Do Individual Analysts Conform to Traditional Risk-Return Relationships?

The relatively low level of explanatory power of traditional risk measures in explaining ex ante, consensus expectations indicated that there was at least the potential for the expectations of individual analysts not to conform to conventionally accepted risk-return relationships. The final phase of the study analyzes this issue. For each of the five months studied earlier, the expected returns of all firms followed by each analyst were compiled. Tests of the linear relationships between the expected returns and either a sixty month, Blume trend adjusted beta or the standard deviation of the historical returns were undertaken. Both the beta and the standard deviation of return were calculated over the sixty

months preceding the month of expectation. The results of this analysis are given in Appendix C. A summary of the Appendix is given in Table 6. During October '82, April '83, and October '83, the large majority of the analysts conform to commonly accepted risk-return behavior patterns. However, during April and October '83 less than half of the analysts have a positive and statistically significant relationship between their individual expectations for returns and either beta or standard deviation estimates. Furthermore the level of explanatory power of these tests is quite low. Less than 3.9 percent of the regressions have an adjusted r-squared value greater than .20, and 60 percent had an adjusted r-squared of less than .05. Thus on balance one cannot place a great deal of confidence in the fact that individual analysts consistently conform to the logic of conventionally accepted asset pricing theory using the risk measure estimates tested in this study.

#### Summary and Conclusions

The purpose of this research has been to report empirical findings on a new and interesting data base containing <u>ex ante</u> returns for a group on nineteen institutional investors. The data cover a period of almost two and one-half years. Among other things the data reveal that the level of homogeneity of institutional investors' return expectations in not high. However, their expectations are in general positively correlated. The average or consensus expectations of the analysts generally conform to the traditional risk-return trade-offs posited by the

Table 6

Summary Categorization of the Statistical Significance of Individual Analysts' Positive Risk-Return Trade-Offs

 $\beta$  = Blume adjusted beta (calculated over the 60 months preceding month of expectation)

 $\sigma$  = Standard deviation of previous 60 months' return

| Analyst<br>Firm  | Oct.<br>β | '81<br>σ | Apr. | '82<br>σ | Oct. | '82<br>σ | Apr. | '83<br>σ | Oct. | '83<br>σ |
|------------------|-----------|----------|------|----------|------|----------|------|----------|------|----------|
| BI1 <sup>1</sup> | yes       | yes      | yes  | yes      | yes  | yes      | n/a  | n/a      | n/a  | n/a      |
| RB1*             | yes       | no       | yes  | yes      | yes  | no       | yes  | yes      | yes  | yes      |
| RB2              | yes       | yes      | yes  | yes      | *    | no       | **   | **       | no   | no       |
| MB1              | yes       | yes      | yes  | no       | yes  | no       | **   | **       | *    | *        |
| RB3*             | yes       | yes      | yes  | yes      | yes  | yes      | yes  | yes      | yes  | yes      |
| RB4              | yes       | no       | yes  | yes      | yes  | yes      | no   | no       | no   | no       |
| RB5*             | yes       | yes      | yes  | yes      | yes  | yes      | yes  | yes      | yes  | yes      |
| мв2              | *         | **       | yes  | no       | yes  | no       | no   | no       | no   | no       |
| BI2*             | no        | *        | no   | *        | *    | *        | *    | **       | **   | **       |
| мв3              | no        | no       | yes  | yes      | yes  | yes      | no   | no       | yes  | yes      |
| RB6*             | yes       | yes      | yes  | yes      | yes  | yes      | yes  | yes      | yes  | yes      |
| віз              | no        | *        | yes  | *        | no   | *        | no   | *        | no   | **       |
| RB7              | *         | *        | yes  | yes      | yes  | yes      | yes  | yes      | yes  | yes      |
| BI4              | yes       | yes      | yes  | yes      | yes  | yes      | yes  | yes      | yes  | yes      |
| B15              | yes       | yes      | yes  | yes      | n/a  | n/a      | n/a  | n/a      | n/a  | n/a      |
| RB8              | yes       | no       | yes  | yes      | yes  | yes      | no   | no       | no   | no       |
| MB4*             | yes       | yes      | yes  | yes      | yes  | *        | yes  | no       | yes  | no       |
| IA1*             | yes       | yes      | yes  | yes      | no   | *        | *    | *        | *    | *        |
| MB5              | yes       | yes      | yes  | yes      | yes  | yes      | *    | *        | *    | *        |

73.7 57.9 94.7 73.7 77.8 55.6 41.2 35.3 47.1 41.2 (% statistically significant and positive at minimum of 5% level)

Not available after Oct. '82 for BI1 and Apr. '82 for BI5.

<sup>\*</sup>Negative but not statistically significant.

<sup>\*\*</sup>Negative and statistically significant.

theory of financial economics. Notwithstanding, when the three risk proxies used in this study are used as independent variables in explaining levels of expected consensus returns, measures of systematic risk and divergence of opinion are positively related to expected return. The third, the standard deviation of previous market returns, is negatively related to expected returns. Finally during the early months of the study, the expectations of individual analysts generally conform to the general paradigm of risk-return pricing. In the later months of the study period, the evidence supporting a positive risk-return trade-off was less convincing.

Clearly the results of this study raise many interesting and important issues that unfortunately must await future research. For example would a multi-factor, arbitrage pricing theory structure better explain the return expectations of these analysts? Do these return expectations generate excess risk - adjusted excess returns? Is there a January effect in the expectations that might explain recent empirical anomalies? The richness of these data offer a truly unique opportunity for future research.

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#### Appendix A

Product Moment and Spearman's Rank Order Correlations for All Possible Analysts' Joint Expectations

October 1981 (Table A-1)

April 1982 (Table A-7)

October 1982 (Table A-13)

April 1983 (Table A-19)

October 1983 (Table A-25)

|                            |                            | MB3  | 0.1164<br>66<br>0.1760  | 0.1350<br>126<br>0.0660 | 0.4990<br>125<br>0.0010  | 0.3143<br>178<br>0.0010 | 0.5482<br>220<br>0.0010 | 0.6681<br>122<br>0.0010 | 0.1600<br>74<br>0.0870 | 0.5538<br>183<br>0.0010 | -0.0503<br>94<br>0.3160  | 1.0000                  |
|----------------------------|----------------------------|------|-------------------------|-------------------------|--------------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|--------------------------|-------------------------|
| R 1981)                    |                            | B12* | -0.0901<br>78<br>0.2170 | 0.4766<br>108<br>0.0010 | -0.0503<br>113<br>0.2990 | 0.0089<br>167<br>0.4550 | 0.3323<br>101<br>0.0010 | -0.0810<br>91<br>0.2230 | 0.4505<br>60<br>0.0010 | 0.1345<br>151<br>0.0500 |                          | -0.0095<br>94<br>0.4640 |
| COCTOBER                   |                            | 1 28 | 0.3463<br>110<br>0.0010 | 0.1750<br>169<br>0.0120 | 0.4381<br>175<br>0.0010  | 0.2692<br>269<br>0.0010 | 0.2214<br>194<br>0.0010 | 0.5514<br>161<br>0.0010 | 0.0990<br>89<br>0.1790 | 0000                    | 0.0993                   | 0.5593<br>183<br>0.0010 |
| LATIONS                    |                            | RB5* | 0.1998<br>36<br>0.1220  | 0.2813<br>64<br>0.0130  | 0.2347                   | 0.3352<br>87<br>0.0010  | 0.4901<br>79<br>0.0010  | 0.1795<br>69<br>0.0710  | 0000                   | 0.0730<br>89<br>0.2480  | 0.5251                   | 0.3211<br>74<br>0.0030  |
| NK CORRE                   |                            | RB4  | 0.4469<br>66<br>0.0010  | 0.1939<br>114<br>0.0200 | 0.6449<br>127<br>0.0010  | 0.4376<br>159<br>0.0010 | 0.2007<br>132<br>0.0110 | 1.0000                  | 0.1821<br>69<br>0.0670 | 0.5438<br>161<br>0.0010 | -0.0800<br>91<br>0.2250  | 0.6797<br>122<br>0.0010 |
| SPEARMAN RANK CORRELATIONS |                            | RB3* | 0.0939<br>74<br>0.2140  | 0.2991<br>138<br>0.0010 | 0.2745<br>134<br>0.0010  | 0.1411<br>192<br>0.0260 |                         | 0.1594<br>132<br>0.0340 | 0.8279                 | 0.1765                  | 0.3407                   | 0.4956<br>220<br>0.0010 |
| AND SPE                    | 1<br>1<br>1<br>1<br>1<br>1 | 1881 | 0.3420<br>121<br>0.0010 | 0.0063<br>169<br>0.4680 | 0.4617                   | 1.0000                  | 0.0619<br>192<br>0.1970 | 0.4755<br>159<br>0.0010 | 0.2864<br>87<br>0.0040 | 0.2682 269 0.0010       | 0.0655                   | 0.3470<br>178<br>0.0010 |
| MOKENT                     |                            | RB2  | 0.3052<br>73<br>0.0050  | 0.2341 127 0.0050       |                          | 0.4229<br>179<br>0.0010 | 0.1626<br>134<br>0.0300 | 0.6199<br>127<br>0.0010 | 0.0948<br>79<br>0.2030 | 0.4030<br>175<br>0.0010 | -0.0339<br>113<br>0.3610 | 0.4456<br>125<br>0.0010 |
| PRODUCT                    |                            | RB1+ | 0.08111<br>78<br>0.2410 | 1.0000                  | 0.2560<br>127<br>0.0020  | 0.0161 169 0.4180       | 0.5710<br>138<br>0.0010 | 0.2569<br>114<br>0.0030 | 0.6655<br>64<br>0.0010 | 0.1872<br>169<br>0.0070 | 0.5508<br>108<br>0.0010  | 0.2713<br>126<br>0.0010 |
|                            |                            | B11  | 1.0000                  | 0.1012<br>78<br>0.1890  | 0.2869<br>73<br>0.0070   | 0.2783                  | 0.1095<br>74<br>0.1770  | 0.4773<br>66<br>0.0010  | 0.2822<br>36<br>0.0480 | 0.2538<br>110<br>0.0040 | -0.0705<br>78<br>0.2700  | 0.1458<br>66<br>0.1210  |

RB3≇

MB1

RB5∗

**RB4** 

B12\*

**MB3** 

MB2

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|---|--------|---------|---------|---------|---------|---------|---------|----------------|
|   | ;      | }       | i       | :       | i       |         |         |                |
|   | 0.1862 | 0.1     | 0.3447  | 0.0206  | 0.4287  | 0.1244  | 0.1008  | 0.3005         |
|   | 67     |         |         | 98      | 63      | 98      | 164     | 100            |
|   | 0,0660 | 0.0300  | 0.0010  | 0.4250  | 0.0010  | 0.1270  | 0.0990  | 0.0010         |
|   | 0.0604 | -0,0006 | 0,4053  | 0.4910  | 0.0294  | 0.5540  | 0.4704  | 7727           |
|   | 128    |         |         |         |         | 127     | 220     | 167            |
|   | 0.2490 | 0       | 0       | 0       | 0.3     | 0       | 0       | 0.0010         |
|   | 0.4231 | 0.4095  | 0.2732  | 0.1912  | 12054   | 0.230   | 7257    | 1725 0         |
|   | 131    | 158     |         |         |         | 139     | 207     | 165            |
|   | 0.0010 | 0       | 0       | 0       | 0       | 0.0030  | 0.0010  | 0.0010         |
|   | 0.3148 | 0.4174  | 0.1633  | 0.1070  | 0.2783  | 0.1258  | 0.1091  | 0.3145         |
|   | 204    |         |         |         |         | 198     | 369     | 229            |
|   | 0.0010 | 0.0010  | 0       | 0       | 0       | 0.0390  | 0.0180  | 0.0010         |
|   | 0.2624 | 0.0946  | 0.3517  | 0.1825  | 0.0924  | 0.5145  | 0.6111  | 0.1558         |
|   | 134    | 159     | 216     | 137     |         | 139     | 238     | 169            |
|   | 0.0010 | 0.1180  | 0.0010  | 0.0160  | 0.1700  | 0.0010  | 0.0010  | 0.0220         |
|   | 0.4940 | 0.4660  | 0.3464  | 0.1583  | 0.5952  | 0.1046  | 0.1153  | 0.5573         |
|   | 122    | 144     | 180     | 120     | 91      | 134     | 193     | 147            |
|   | 0.0010 | 0.0010  | 0.0010  | 0.0420  | 0.0010  | 0.1140  | 0.0550  | 0.0010         |
|   | 0.1541 | 0.0885  | 0.4533  | 0.1008  | 0.0828  | 0.7073  | 0.6928  | 0.0460         |
|   | 28     | 82      |         | 89      | 59      | 8       | 103     | 81             |
|   | 0.1240 | 0.2100  | 0.0010  | 0.2070  | 0.2660  | 0.0010  | 0.0010  | 0.3420         |
|   | 0.3508 | 0.4935  | 0.1855  | 0.0007  | 0.5466  | -0.0345 | -0.0216 | 0.3642         |
|   | 187    | 212     | 310     | 199     | 142     | 183     | 343     | 230            |
|   | 0.0010 | 0.0010  | 0.0010  | 0.4960  | 0.0010  | 0.3220  | 0.3450  | 0.0010         |
|   | 0.0709 | 0.0819  | -0.0256 | 0.3312  | -0.0480 | 0.4754  | 0.3160  | 0.0318         |
|   | 124    | 135     | 202     | 136     | 26      | 127     | 213     | 144            |
|   | 0.2170 | 0.1730  | 0.3590  | 0.0010  | 0.3240  | 0.0010  | 0.0010  | 0.3520         |
|   | 0.3322 | 0.5350  | 0.1984  | -0.1047 | 0.5712  | 0.1198  | 0.1720  | 0.5062         |
|   | 121    | 148     |         | 128     | 102     | 128     | 221     | 153            |
| • | 0.0010 | 0.0010  | 0.0020  | 0.1200  | 0.0010  | 0.0890  | 0.0050  | 0.0010         |

PRODUCT MOMENT CORRELATIONS (OCTOBER 1981)

B11

RB1#

RB2

| PRODUCT MOMENT AND SPEARMAN RANK CORRELATIONS (OCTOBER 1981) | RB6* RI3 RB7 BI4 BI5 RF8 M54* IA1* *   | RB6+ 1.0000 0.2260 0.0248 0.2876 0.3843 0.0470 0.5267 0.3527 0.3<br>11111 121 153 210 129 99 139 223 10<br>111111 0.0070 0.3810 0.0010 0.0010 0.3220 0.0010 0.0010 0.0 | BI3 0.2489 1.0000 0.4215 0.3410 0.1084 0.4482 0.1168 0.1028 0.3<br>121 11111 158 237 159 101 145 262 13<br>0.0030 11111 0.0010 0.0010 0.0870 0.0010 0.0810 0.0490 0.0    | RB7 -0.0207 0.4310 1.0000 0.1351 -0.1305 0.5295 -0.0399 -0.0892 0.713 158 181818 246 161 111 162 262 11 0.4000 0.0010 181818 0.0180 0.0500 0.0010 0.3080 0.0750 0.10    | B14 0.3067 0.3512 0.1270 1.0000 0.1306 0.2620 0.3954 0.1411 0.:<br>210 237 246 ##### 239 166 214 439 2<br>0.0010 0.0010 0.0230 ##### 0.0220 0.0010 0.0010 0.0020 0.     | B15 0.3920 0.1318 -0.1048 0.1603 1.0000 -0.1485 0.4531 0.4050 0.1 129 159 161 239 ###### 107 140 260 1 0.0010 0.0490 0.0930 0.0070 ##### 0.0640 0.0010 0.0010 0.0490 0.0930 0.0070 | RBB 0.0267 0.4434 0.5665 0.3080 -0.1192 1.0000 0.0920 0.1027 0.:<br>99 101 111 166 107 11111 102 177 1<br>0.3970 0.0010 0.0010 0.0010 0.1110 111111 0.1790 0.0870 0. | M64* 0.6574 0.1971 -0.0271 0.4779 0.5116 0.0321 1.0000 0.4863 0.<br>139 145 162 214 140 102 11111 238 1<br>0.0010 0.0090 0.3660 0.0010 0.0010 0.3740 11111 0.0010 0. | 1A1* 0.5692 0.1485 -0.0943 0.2132 0.4285 0.1242 0.5930 1.0000 0.<br>223 262 262 439 260 177 238 111111 2<br>0.0010 0.0080 0.0640 0.0010 0.0010 0.0500 0.0010 111111 0.    | M85 0.1734 0.3679 0.4228 0.2033 0.2541 0.5250 0.1868 0.2522 1.<br>165 177 184 278 172 127 158 294 11<br>0.0130 0.0010 0.0010 0.0010 0.0010 0.0010 0.0090 0.0010 11       | (COEFFICIENT / CASES / SIGNIFICANCE) (ABOVE DIAGONAL - RANK CORR, BELOW DIAGONAL - PRODUCT MOMENT C  |
|--|--|--|--|---|---|--|--|--|---|--|--|
| PEARMAN RANK CORRELATIONS (OCTOBER 1981)                     | RB6* B13 RB7 B14 B15 RB9 MR4* 1A1* ME5 | 0.1510 0.1614 0.2286 0.3337 0.0614 0.4720 0.0507 0.1129 0.3021<br>80 67 92 152 86 63 86 164 100<br>0.0910 0.0960 0.0150 0.0010 0.2880 0.0010 0.3220 0.0760 0.0020      | 0,4233 0,0922 -0,0242 0,3834 0,5009 -0,0288 0,5031 0,3618 0,2063<br>134 128 152 205 129 99 127 220 167<br>0,0010 0,1510 0,3840 0,0010 0,0010 0,3890 0,0010 0,0010 0,0040 | 0.3029 0.4372 0.4196 0.2664 0.1002 0.3914 0.1921 0.1909 0.5652<br>130 131 158 194 141 106 139 207 165<br>0.0010 0.0010 0.0010 0.0010 0.1190 0.0010 0.0120 0.0030 0.0010 | 0.2308 0.3800 0.4205 0.1401 0.0642 0.3045 0.0948 0.0394 0.3317<br>183 204 206 333 199 146 198 369 229<br>0.0010 0.0010 0.0010 0.0060 0.1840 0.0010 0.0920 0.2260 0.0010 | 0.4387 0.3204 0.1054 0.2892 0.1457 0.1527 0.5562 0.4263 0.2018<br>141 134 159 216 137 109 139 238 169<br>0.0010 0.0010 0.0940 0.0010 0.0450 0.0570 0.0010 0.0010 0.0050            | 0.2483 0.5049 0.4212 0.3532 0.1624 0.6117 0.1317 0.1360 0.6066<br>127 122 144 180 120 91 134 193 147<br>0.0030 0.0010 0.0010 0.0390 0.0010 0.0650 0.0300 0.0010      | 0.4222 0.1724 0.1452 0.3134 0.1105 0.1797 0.5572 0.3983 0.0964<br>74 58 85 96 68 59 80 103 81<br>- 0.0010 0.0980 0.0930 0.0010 0.1850 0.0870 0.0010 0.0010 0.1960    | 0.2119 0.3770 0.4442 0.2120 0.0575 0.5626 -0.0108 -0.0220 0.3884<br>172 187 212 310 199 142 183 343 230<br>0.0030 0.0010 0.0010 0.0010 0.2110 0.0010 0.4430 0.3430 0.0010 | 0.3545 0.0571 0.0708 0.0766 0.3884 -0.0549 0.4022 0.2831 -0.0030<br>113 124 135 202 136 93 127 213 144<br>0.0010 0.2650 0.2080 0.1400 0.0010 0.3010 0.0010 0.0010 0.4860 | 0.0685 0.3719 0.4738 0.2240 -0.1402 0.5937 0.0762 0.1419 0.5214<br>130 121 148 200 128 102 128 221 153<br>0.2200 0.0010 0.0010 0.0010 0.0580 0.0010 0.1970 0.0180 0.0010 |

R83\*

RB1#

RBS

#B1

811

H I I I

**B12**+

**KB3** 

RB5#

뗥

RB4

|                         | PRODUCT                 | MOMENT                  | AND SP                  | EARMAN                  | RANK CO                 | RRELATIO               | SPEARMAN RANK CORRELATIONS (APRIL 1982)   | 11 1982)                |                         |                  |                  |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|---|-------------------------|-------------------------|------------------|------------------|
|                         | RB1*                    | RR2                     | E                       | # 1<br>EH 1             | R84                     | # L                    | 88  | eu  <br>Eu              | - 1 B3                  |                  | RB61             |
| 1.0000                  | 0.2913<br>64<br>0.0100  | 0.5355<br>69<br>0.0010  | 0.3236                  | 0.3588<br>69<br>0.0020  | 0.5377<br>66<br>0.0010  | 0.3911                 | 0.2790 -0.1157<br>111 70<br>0.0020 0.1710 | -0.1157<br>70<br>0.1710 | 0.2362<br>63<br>0.0320  | æ.               | 0.30             |
| 0.4005<br>64<br>0.0010  | 1.0000                  | 0.4098<br>103<br>0.0010 | 0.1737<br>129<br>0.0250 | 0.2965<br>111<br>0.0010 | 0.1237<br>100<br>0.1110 | 0.4399                 | 0.0668<br>143<br>0.2150                   | 0.4132<br>85<br>0.0010  | 0.0656<br>101<br>0.2580 | RB1#             | 0.00             |
| 0.5316<br>69<br>0.0010  | 0.5240<br>103<br>0.0010 | 1.0000                  | 0.5018<br>161<br>0.0010 | 0.5816<br>121<br>0.0010 | 0.6616                  | 0.5031<br>72<br>0.0010 | 0.5453<br>164<br>0.0010                   | 0.1207<br>104<br>0.1120 | 0.6740<br>113<br>0.0010 |                  | 9 9              |
| h 0                     | 0.1703                  | 0.5430<br>161<br>0.0010 | 1.0000                  | 0.3301<br>165<br>0.0010 | 0.4460<br>151<br>0.0010 | 0.4083<br>80<br>0.0010 | 0.2599 255 0.0010                         | 0.1301<br>147<br>0.0590 | 0.3817<br>154<br>0.0010 | æ<br>Æ           | 0.0              |
| m 0                     | 0.6190                  | 0.4756<br>121<br>0.0010 | 0.1908<br>165<br>0.0070 | 1.0000                  | 0.3954<br>125<br>0.0010 | 0.5541                 | 0.3939                                    | 0.3489<br>85<br>0.0010  | 0.5451<br>200<br>0.0010 | RB3*             | 0<br>0<br>0<br>0 |
| - 0                     | 0.2730<br>100<br>0.0030 | 0.6027                  | 0.4476                  | 0.3337                  | 1.0000                  | 0.3500<br>67<br>0.0020 | 0.4780                                    | 0.0165<br>83<br>0.4420  | 0.5985<br>116<br>0.0010 | RB4              | 0.0              |
| 4 0                     | 0.5063                  | 0.4263                  | 0.2051<br>80<br>0.0340  | 0.5586<br>75<br>0.0010  | 0.2198<br>67<br>0.0370  | 1.0000                 | 0.2253<br>85<br>0.0200                    | 0.3802<br>53<br>0.0030  | 0.2146<br>69<br>0.0390  | R<br>S<br>S<br>S | 0 0              |
| 0.2391<br>111<br>0.0060 | 0.0133                  | 0.4761 164 0.0010       | 0.2182<br>255<br>0.0010 | 0.3125                  | 0.4408<br>161<br>0.0010 | 0.1276<br>85<br>0.1220 | 1.0000                                    | 0.2434<br>137<br>0.0030 | 0.4320<br>170<br>0.0010 | en en            | 0.0              |
| -0.0582<br>70<br>0.3160 | 0.5641<br>85<br>0.0010  | 0.1219                  | 0.0701<br>147<br>0.2000 | 0.3545<br>85<br>0.0010  | -0.0238<br>83<br>0.4160 | 0.5103<br>53<br>0.0010 | 0.1852<br>137<br>0.0150                   | 1.0000                  | 0.0296<br>80<br>0.3980  | ču<br>G          | 0.0              |
| 0.3002<br>63<br>0.0080  | 0.2270<br>101<br>0.0110 | 0.6089                  | 0.3426<br>154<br>0.0010 | 0.5259                  | 0.5970<br>116<br>0.0010 | 0.1178<br>69<br>0.1670 | 0.4763<br>170<br>0.0010                   | -0.0239<br>80<br>0.4170 |                         |                  | 0.0              |
|                         |                         |                         |                         |                         |                         |                        |   |                         |                         |                  |                  |

### (COEFFICIENT / CASES / SIGNIFICANCE )

BELOW DIAGONAL - PRODUCT MOMENT CORR.) (ABOVE DIAGONAL - RANK CORR.

|              | 1A1        | 0.3135 0. | 0.0010 0. | 0.5649 0. | 0.0010 0. | 0.5548 0. | 0.0010 0. | 0.2480 0. | 0.0010 0. | 0.6791 0. | 0.0010 0. |
|--------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1982)        | #58W       | 0.3976 0. | 0.0010 0  | 0.4803 0  | _         | 0.4441 0  | 0         | 0.2528 0  | 0         | 0.5092    | 0.0010    |
| (APRIL       | R 18       | 0.3299    | 0.0050    | 0.1396    | 0,1060    | 0.5279    | 0.0010    | 0.2733    | 0.0010    | 0.3282    | 0.0       |
| CORRELATIONS | <u>m</u> ! | 0.4420    | 0.0010    | 98 98     | 0.0010    | 0.0397    | 0.3310    | 0.0400    | 0.3010    | 0.0339    | 0         |
|              | \$  <br>   | 0.4846    | 0.0010    | 0.1811    | 0.0100    | 0.5479    | 0.0010    | 0.2351    | 0.0010    | 0.2427    | 0.0010    |
| KOMENT       | RB7        | 0.4693    | 0.0010    | 0.3021    | 0.0010    | 0.6189    | 0.0010    | 0.4972    | 0.0010    | 0.3502    | 0.0010    |
| PRODUCT      | B13        | 0,3797    | 0.0010    | 0.2434    | 0,0000    | 0.4492    | 0.0010    | 0.2800    | 0.0010    | 0.3927    | 0         |
|              | RE6*       | 0.3050    | 0.0030    | 0.5751    | 0.0010    | 0.5554    | 0.0010    | 0.3354    | 0.0010    | 0.5355    |           |

| 0  | 0      | 0   | Ö      | ď  |
|--|--------|---|--------|--|
| 0.2334   | 0.0010 | 0.5311  | 0.0010 | 0.1501   |
| 0.1564   | 0.0370 | 0.7421  | 0.0010 | 0 1890   |
| 0.5742   | 0.0010 | 0.0757  | 0.2910 | 0 4071   |
| 0.1680 0.3867 0.5753 0.4011 0.1416 0.5742 0.1564 0.2334 0.127 118 141 181 108 87 132 193 | 0.0720 | 0.4861 0.1804 0.3252 0.2577 0.0429 0.0757 0.7421 0.5311 0.72 52 81 91 60 55 76 97 | 0.3720 | 1720 0-  |
| 0.4011   | 0.0010 | 0.2577  | 0.0070 | 7612 0   |
| 0.5753   | 0.0010 | 0.3252  | 0.0020 | 0 50 5   |
| 0.3867   | 0.0010 | 0.1804  | 0.1000 | 9000   |
| 0.1680   | 0.0300 | 0.4861  | 0.0010 | 0 1091 0 081 0 1207 0 1720 0 7612 0 0105 0 0007 0 3076 0 |
| R84  |        | RB5*  |        | ZES.   |

|  | · ·  |                           |
|--|--|---------------------------|
| 0.1601 0.<br>343<br>0.0010 0.                                    | 0.3307   |                           |
| 0.1890<br>182<br>0.0050  | 0.5245<br>111<br>0.0010                        | 0.2170<br>123<br>0.0080   |
| 137  | 0.0061<br>84<br>0.4780                         | 0.6204<br>94<br>0.0010    |
| 0.5018 0.3126 -0.0351 0<br>210 309 183<br>0.0010 0.0010 0.3140 0 | 0.1154 0.0061<br>122 84<br>0.1030 0.4780       | -0.3090<br>105<br>0.0010  |
| 0.3126<br>309<br>0.0010  | 0.1194 -0.0392 0<br>123 184<br>0.0940 0.2990 0 | 0.4396 -<br>188<br>0.0010 |
| 0.5018<br>210<br>0.0010  | 0.1194   | 0.5939<br>136<br>0.0010   |
| 0.4088<br>182<br>0.0010  | 0.1628<br>113<br>0.0420                        | 0.2872<br>116<br>0.0010   |
| 0.2685   | 0.4999   | 0.1198                    |
| cu<br>Eg   | \$15*  | <b>MB</b> 3               |

### (COEFFICIENT / CASES / SIGNIFICANCE )

ND SPEARMAN RANK CORRELATIONS (APRIL 1982)

0.0

0.4

0.2491 258 0.0010

0.3320

0.4686 97 0.0010

0.0687 143 0.2080

0.4370 229 0.0010

RB1 ♣

F.B.2

BII

1.6

0.4216 221 0.0010

0.5965 138 0.0010

0.3994 94 0.0010

0.1129 115 0.1150

0.4191 208 0.0010

불극

IAI

MB4\*

RBB !

915

91e

0.6 0.0

0.2487 255 0.0010

0.2870 157 0.0010

0.6491 108 0.0010

-0.1909 147 0.0110

0.4119 -241 0.0010

0.5 27 0.0

0.2519 437 0.0010

0.4470 211 0.0010

0.5053 163 0.0010

0.0708 220 0.1480

1.0000 111111 0.0

0.1871 125 0.0190

-0.1751 96 0.0440

1.0000

0.0643 220 0.1710

0.1920 0.0020 0.6

0.2669 170 0.0010

0.3434 98 0.0010

1.0000

0.4785 -0.0493 163 96 0.0010 0.3170

0.3

0.4762 235 0.0010

1.0000

0.2502 98 0.0060

0.1924 125 0.0160

211 0.0010

0.4729

0.2

1.0000

0.5641 235 0.0010

0.2914 170 0.0010

0.1762 240 0.0030

0.2688 0.0010 0::::

0.2413

0.5885 121 0.0010

0.0871 156 0.1400

0.4272 277 0.0010

B12\*

KB3

RB5#

MB2

RB4

0.0010 0.2089

| PRODUCT MOMENT AND SPEC | RB6* B13 RB7 | RB6* 1.0000 0.4527 0.4402 (111111 111 151 1111 151 151 151 151 15 | BI3 0.4373 1.0000 0.4269 117 88888 149 0.0010 888888 0.0010 | RB7 0.3748 0.4490 1.0000 151 149 888888 0.0010 0.0010 888888 | B14 0.2978 0.4322 0.3882 208 229 241 0.0010 0.0010 0.0010 | BIS 0.0992 0.0510 -0.2134 (115 143 147 0.1460 0.2730 0.0050 ( | RBB 0.3622 0.4734 0.6412 (94 97 108 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 | MB4* 0.6700 0.4119 0.2079 (138 141 157 0.0010 0.0010 0.0040 ( | IAI* 0.5528 0.2934 0.2360 (<br>221 258 255<br>0.0010 0.0010 0.0010 ( | MB5 0.4440 0.3438 0.6427 (<br>165 172 179<br>0.0010 0.0010 0.0010 ( | (ABOVE DÍAGONAL - RANK CO |                                |
|-------------------------|--------------|---|---|--|---|---|---|---|--|---|---------------------------|--------------------------------|
|                         | MB5          | 0.5048<br>98<br>0.0010  | 0.2979<br>145<br>0.0010                                     | 0.6961<br>154<br>0.0010                                      | 0.3416<br>216<br>0.0010                                   | 0.3881<br>157<br>0.0010                                       | 0.5821<br>148<br>0.0010   | 0.3917<br>78<br>0.0010  | 0.4349<br>232<br>0.0010  | 0.1190<br>133<br>0.0870   | 0.5528<br>145<br>0.0010   |                                |
|                         | #            | 0.2351<br>163<br>0.0020   | 0.4346<br>181<br>0.0010                                     | 0.4368<br>195<br>0.0010                                      | 0.2450<br>351<br>0.0010                                   | 0.5316 214 0.0010   | 0.2835<br>193<br>0.0010   | 0.4142  | 0.1762<br>343<br>0.0010  | 0.2608<br>193<br>0.0010   | 0.3004<br>201<br>0.0010   |                                |
| 1982)                   | MB4*         | 0.3229<br>86<br>0.0020  | 0.4373<br>111<br>0.0010                                     | 0.4529<br>131<br>0.0010                                      | 0.2707<br>187<br>0.0010                                   | 0.5628<br>133<br>0.0010                                       | 0.2694<br>132<br>0.0010   | 0.6742<br>76<br>0.0010  | 0.2258<br>182<br>0.0020  | 0.4360<br>111<br>0.0010   | 0.2604                    | CANCE )                        |
| (APRIL                  | RB6          | 0.3097  | 0.1907<br>82<br>0.0440                                      | 0.5660   | 0.4094  | 0.3844  | 0.5986<br>87<br>0.0010  | 0.2706<br>55<br>0.0230  | 0.6060 137 0.0010  | 0.0343<br>84<br>0.3790  | 0.5929<br>94<br>0.0010    | CIENT / CASES / SIGNIFICANCE ) |
| CORRELATIONS            | B15          | 0.3688<br>81<br>0.0010  | 0.4482<br>98<br>0.0010                                      | -0.0625<br>124<br>0.2460                                     | -0.0579<br>172<br>0.2260                                  | 0.0448  | 0.1234<br>108<br>0.1020   | 0.0620<br>60<br>0.3200  | 0.0054<br>183<br>0.4720  | 0.1485<br>122<br>0.0520   | -0.3019<br>105<br>0.0010  | CASES /                        |
|                         | B14          | 0.5517<br>148<br>0.0010   | 0.2996<br>167<br>0.0010                                     | 0.5984<br>188<br>0.0010                                      | 0.2668<br>319<br>0.0010                                   | 0.3197<br>198<br>0.0010                                       | 0.5055<br>181<br>0.0010   | 0.4044<br>91<br>0.0010  | 0.3975<br>309<br>0.0010  | 0.0996<br>184<br>0.0900   | 0.4360<br>188<br>0.0010   | ICIENT /                       |
| AN RANK                 | RB7          | 0.4994<br>89<br>0.0010  | 0.2257  | 0.6092   | 0.5563<br>193<br>0.0010                                   | 0.4015<br>147<br>0.0010                                       | 0.5829<br>141<br>0.0010   | 0.3878<br>81<br>0.0010  | 0.5000<br>210<br>0.0010  | 0.1490<br>123<br>0.0510   | 0.5786<br>136<br>0.0010   | (COEFF1                        |
| SPEARMAN                | B13          | 0.3821<br>65<br>0.0010  | 0.2279<br>106<br>0.0100                                     | 0.4421   | 0.3432<br>193<br>0.0010                                   | 0.4181<br>126<br>0.0010                                       | 0.4638<br>118<br>0.0010   | 0.2465<br>52<br>0.0400  | 0.3864<br>182<br>0.0010  | 0.1800<br>113<br>0.0290   | 0.2471<br>116<br>0.0040   |                                |
|                         | RB6∗         | 0.3879  | 0.5565<br>113<br>0.0010                                     | 0.5469<br>123<br>0.0010                                      | 0.3531  | 0.5025<br>130<br>0.0010                                       | 0.3275  | 0.5054  | 0.3514   | 0.4115  | 0.1743<br>119<br>0.0290   |                                |

RB3#

**#**B1

BELOW DIAGONAL - PRODUCT MOMENT CO RANK CORR.

COEFFICIENT / CASES / SIGNIFICANCE )

|                            |                   | •                       |   |                         |                         |                         |  |                         |   |   |   |
|----------------------------|-------------------|-------------------------|---|-------------------------|-------------------------|-------------------------|--|-------------------------|---|---|---|
|                            | 32.4              | 0.0                     | 0.0                                       | 0.0                     | 2 0.:                   | 0.0                     | 0.0  | 3 0.1                   | 5 0.7                                     | 6 0.0                                     | 2 0.5                                     |
|                            | IAI               | 0.1431 157 0.0370       | 0.4337<br>180<br>0.0010                   | 0.3305<br>200<br>0.0010 | 0.1422<br>327<br>0.0050 | 0.5398<br>206<br>0.0010 | 0.0734<br>186<br>0.1600                    | 0.5373<br>88<br>0.0010  | 0.1355                                    | 0.5016<br>177<br>0.0010                   | 0.1942<br>190<br>0.0040                   |
| (OCTOBER 1982)             | M84+              | 0.0293<br>81<br>0.3970  | 0.3638<br>113<br>0.0010                   | 0.2067<br>135<br>0.0080 | 0.3366<br>175<br>0.0010 | 0.4883<br>127<br>0.0010 | 0.1859<br>126<br>0.0190                    | 0.6107<br>68<br>0.0010  | 0.0809<br>177<br>0.1420                   | 0.6424<br>99<br>0.0010                    | 0.1033<br>116<br>0.1350                   |
|                            | RB8               | 0.4964                  | 0.1807<br>82<br>0.0520                    | 0.2234 104 0.0110       | 0.1816 123 0.0220       | 0.2995                  | 0.6829<br>86<br>0.0010                     | -0.2173<br>49<br>0.0670 | 0.5293                                    | -0.0273<br>77<br>0.4070                   | 0.6241<br>88<br>0.0010                    |
| CORRELATIONS               | B15               |                         | •   | •                       | •                       | •                       | •  | •                       | •   | •   | •   |
|                            | 914               | 0.4440                  | 0.1879<br>167<br>0.0080                   | 0.1628<br>192<br>0.0120 | 0.2890<br>298<br>0.0010 | 0.3142<br>188<br>0.0010 | 0.5524<br>173<br>0.0010                    | 0.2441<br>82<br>0.0140  | 0.3567<br>306<br>0.0010                   | -0.0248<br>168<br>0.3750                  | 0.5217 174 0.0010                         |
| HOMENT                     | RB7               | 0.4942<br>85<br>0.0010  | 0.1621<br>128<br>0.0340                   | 0.3280<br>155<br>0.0010 | 0.5494<br>180<br>0.0010 | 0.3080<br>143<br>0.0010 | 0.6046<br>138<br>0.0010                    | 0.1972<br>74<br>0.0460  | 0.5226<br>212<br>0.0010                   | -0.0154<br>110<br>0.4370                  | 0.6440                                    |
| PRODUCT                    | B13               | 0.1161<br>71<br>0.1670  | 0.2337<br>112<br>0.0070                   | 0.2223<br>128<br>0.0060 | 0.4083<br>182<br>0.0010 | 0.3145<br>127<br>0.0010 | 0.4697<br>117<br>0.0010                    | 0.0872<br>50<br>0.2730  | 0.4002<br>189<br>0.0010                   | 0.3705                                    | 0.2255<br>114<br>0.0080                   |
|                            | RB6*              | 0.3491<br>70<br>0.0020  | 0.4739                                    | 0.2318<br>127<br>0.0040 | 0.1449                  | 0.5984<br>125<br>0.0010 | 0.0586<br>120<br>0.2620                    | 0.4933<br>62<br>0.0010  | 0.1978<br>168<br>0.0050                   | 0.5688<br>92<br>0.0010                    | 0.1670<br>114<br>0.0380                   |
|                            |                   | B11                     | RB1*                                      | RB2                     | 1891                    | R<br>83.                | 98<br>2-                                   | RB5*                    | MB2                                       | 812*                                      | MB3                                       |
|                            |                   | 0.3484<br>57<br>0.0040  | -0.1166<br>95<br>0.1310                   | 0.2621<br>114<br>0.0030 | 0.2870<br>138<br>0.0010 | 0.5192<br>189<br>0.0010 | 0.6063<br>111<br>0.0010                    | 0.0956<br>61<br>0.2320  | 0.5178<br>160<br>0.0010                   | -0.2636<br>69<br>0.0150                   | 1.0000                                    |
| (OCTOBER 1982)             | BI2#              | -0.1521<br>65<br>0.1140 | 0.4244 -<br>80<br>0.0010                  | 0.1385<br>92<br>0.0940  | 0.1740<br>131<br>0.0240 | 0.1628<br>75<br>0.0820  | -0.1193<br>73<br>0.1580                    | 0.3185<br>41<br>0.0220  | 0.0004                                    | 1.0000                                    | -0.2778<br>69<br>0.0100                   |
| (0CT0BI                    | HB2               | 0.2483 105<br>0.0060    | 0.0403                                    | 0.3893<br>171<br>0.0010 | 0.2650 233 0.0010       | 0.2623<br>173<br>0.0010 | 0.4693                                     | 0.0384<br>78<br>0.3700  | 1.0000                                    | 0.5273 -0.0314<br>41 122<br>0.0010 0.3660 | 0.4544 -0.2778<br>160 69<br>0.0010 0.0100 |
| LATIONS                    | RB5*              | 0.4514<br>32<br>0.0050  | 0.4277<br>50<br>0.0010                    | 0.0021<br>68<br>0.4940  | 0.3021<br>68<br>0.0070  | 0.4823<br>67<br>0.0010  | 1.0000 -0.0443<br>##### 61<br>##### 0.3680 | 1.0000                  | -0.0098<br>78<br>0.4660                   | 0.5273                                    | 0.0621<br>61<br>0.3170                    |
| VK CORRE                   | R84               | 0.5275<br>61<br>0.0010  | 0.2740 -0.1538<br>106 93<br>0.0030 0.0710 | 0.3926<br>122<br>0.0010 | 0.4141                  | 0.2634<br>120<br>0.0020 | 1.0000                                     | -0.0981<br>61<br>0.2260 | 0.4525 -0.0098<br>158 78<br>0.0010 0.4660 | -0.1273<br>73<br>0.1420                   | 0.5907<br>111<br>0.0010                   |
| SPEARMAN RANK CORRELATIONS | #  <br>88  <br>83 | 0.3697<br>63<br>0.0020  | 0.2740<br>106<br>0.0030                   | 0.1918<br>125<br>0.0170 | 0.2000<br>151<br>0.0070 | 1.0000                  | 0.2002 120 0.0140                          | 0.5861<br>67<br>0.0010  | 0.1668<br>173<br>0.0140                   | 0.2483 -0.1273<br>75 73<br>0.0160 0.1420  | 0.4695<br>189<br>0.0010                   |
| AND SPE                    | EB                | 0.4455<br>113<br>0.0010 | 0.2426<br>118<br>0.0050                   | 0.2606<br>156<br>0.0010 | 1.0000                  | 0.1337<br>151<br>0.0510 | 0.4007                                     | 0.2996<br>68<br>0.0070  | 0.2778<br>233<br>0.0010                   | 0.1043<br>131<br>0.1180                   | 0.2861<br>138<br>0.0010                   |
|                            | RB2               | -0.0218<br>66<br>0.4310 | 0.0875<br>108<br>0.1850                   | 1.0000                  | 0.2751<br>156<br>0.0010 | 0.2149                  | 0.3408<br>122<br>0.0010                    | 0.0110<br>68<br>0.4650  | 0.3532 171 0.0010                         | 0.1887<br>92<br>0.0360                    | 0.2713<br>114<br>0.0020                   |
| PRODUCT MOMENT             | R81               | 0.3218<br>62<br>0.0060  | 1.0000                                    | 0.1632<br>108<br>0.0460 | 0.2835<br>118<br>0.0010 | 0.4033<br>106<br>0.0010 | -0.0419<br>93<br>0.3450                    | 0.4789<br>50<br>0.0010  | 0.0281<br>144<br>0.3690                   | 0.4727<br>80<br>0.0010                    | 0.0438<br>95<br>0.3370                    |
| - :                        | B ! !             | 1.0000                  | 0.3291<br>62<br>0.0050                    | -0.1508<br>66<br>0.1130 | 0.5673<br>113<br>0.0010 | 0.4598<br>63<br>0.0010  | 0.2924 -<br>61<br>0.0110                   | 0.4588<br>32<br>0.0040  | 0.1830<br>105<br>0.0310                   | -0.0762<br>65<br>0.2730                   | 0.5139<br>57<br>0.0010                    |
|                            |                   | H.                      | RB1                                       | RB2                     | <b>18</b>               | RB3*                    | RB4  | RB5#                    | 585                                       | 812*                                      | m<br>m<br>m                               |

## (COEFFICIENT / CASES / SIGNIFICANCE)

BELOW DIAGONAL - PRODUCT NOMENT CORR.)

(ABOVE DIAGONAL - RANK CORR.

(COEFFICIENT / CASES / SIGNIFICANCE)

|   |                         | SPEAF                     | RMAN RAP                 | SPEARMAN RANK CORRELATIONS | CATIONS |                         | (OCTOBER 1982)          |                         |                         |          | PRODUCT                 | PRODUCT HOMENT                              | AND SPEARMAN RANK CORRELATIONS | ARHAN RAN               | K CORRE         | LATIONS   | (OCTOBE                     | (OCTOBER 1982)                |                                       |
|---|-------------------------|---------------------------|--------------------------|----------------------------|---------|-------------------------|-------------------------|-------------------------|-------------------------|----------|-------------------------|---|--------------------------------|-------------------------|-----------------|---|-----------------------------|-------------------------------|---------------------------------------|
|   | R86#                    | B13                       | RB7                      | 518                        | 518     | 88                      | M84*                    | IAI                     | MB5                     |          | K86*                    | B13   | RB7                            | 914                     | 5               | R88   | #84.                        | 1911                          | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| <b>B</b> 11   | 0.3739                  | 0.1446<br>71<br>0.1150    | 0.4672<br>85<br>0.0010   | 0.5655<br>142<br>0.0010    | •       | 0.3590<br>55<br>0.0040  | 0.0902<br>81<br>0.2120  | 0.0909<br>157<br>0.1290 | 0.6653                  | R86*     | 1.0000                  | 0.4641                                      | 0.1853<br>148<br>0.0130        | 0.3626                  | •               | 0.1865<br>94<br>0.0360  | 0.5767<br>135<br>0.0010     | 0,3764.<br>216<br>0,0010      | 0.3835<br>162<br>0.0010               |
| R91<br>8  | 0,4840<br>110<br>0.0010 | 0.1914                    | 0.1217<br>128<br>0.0860  | 0.2410<br>167<br>0.0010    | •       | 0.1739<br>82<br>0.0600  | 0.3422                  | 0.3607<br>180<br>0.0010 | 0.0621<br>143<br>0.2310 | 813      | 0.4620 122 0.0010       | 1.0000                                      | 0.4547<br>158<br>0.0010        | 0.4118<br>238<br>0.0010 | •               | 0.4083  | 0.3552<br>144<br>0.0010     | 0.3505<br>264<br>0.0010       | 0.4059<br>180<br>0.0010               |
| RB2   | 0.1436 127 0.0540       | 0.2634<br>128<br>0.0020   | 0.2964<br>155<br>0.0010  | 0.1409<br>192<br>0.0260    |         | 0.2920                  | 0.1660<br>135<br>0.0280 | 0.2840<br>200<br>0.0010 | 0.2107<br>159<br>0.0040 | R87      | 0.1702<br>148<br>0.0190 | 0.4501<br>158<br>0.0010                     | 1.0000                         | 0.4983 247              | •               | 0.6433  | 0.0161<br>158<br>0.4210     | 0.1409<br>257<br>0.0120       | 0.6373<br>183<br>0.0010               |
| <b>H</b> 81   | 0.2431 159 0.0020       | 0.4461<br>182<br>0.0010   | 0.4763<br>180<br>0.0010  | 0.2972<br>298<br>0.0010    | 1       | 0.2403                  | 0.3088<br>175<br>0.0010 | 0.1641<br>327<br>0.0020 | 0.2347<br>203<br>0.0010 | 916<br>9 | 0.3023                  | 0.4021<br>238<br>0.0010                     | 0.5533<br>247<br>0.0010        | 1.0000                  | •               | 0.4989  | 0.3070 210 0.0010           | 0.1172<br>436<br>0.0080       | 0.6363<br>279<br>0.0010               |
| RB3*  | 0.5482<br>125<br>0.0010 | 0.3610<br>127<br>0.0010   | 0.2374                   | 0.3689<br>188<br>0.0010    |         | 0.3283<br>94<br>0.0010  | 0.5544<br>127<br>0.0010 | 0.4397<br>206<br>0.0010 | 0.5229<br>151<br>0.0010 | B15      | •                       | 1   |                                |                         | 1.0000          | ı   |                             |                               |                                       |
| RB4   | 0.1048<br>120<br>0.1280 | 0.4036                    | 0.6793<br>138<br>0.0010  | 0.5581<br>173<br>0.0010    | ,       | 0.7099<br>86<br>0.0010  | 0.1700<br>126<br>0.0290 | 0.0334<br>186<br>0.3260 | 0.5737<br>143<br>0.0010 | R88      | 0.2411<br>94<br>0.0100  | 0.5073                                      | 0.6672<br>108<br>0.0010        | 0.4767                  |                 | 1.0000  | 0.0377<br>95<br>0.3590      | 0.1230<br>167<br>0.0570       | 0.6470<br>122<br>0.0010               |
| RB5*  | 0.4097<br>62<br>0.0010  | 0.2679<br>50<br>0.0310    | 0.1455<br>74<br>0.1090   | 0.3295<br>82<br>0.0020     |         | -0.0839<br>49<br>0.2840 | 0.5287<br>68<br>0.0010  | 0.4542<br>88<br>0.0010  | 0.2431<br>73<br>0.0200  | #484     | 0.6704<br>135<br>0.0010 | 0.3946                                      | 0.0363<br>158<br>0.3250        | 0.3170<br>210<br>0.0010 | •               | 0.0817<br>95<br>0.2160  | 00000                       | 0.4468<br>230<br>0.0010       | 0.2483<br>156<br>0.0010               |
| 28<br>28<br>28<br>28<br>28<br>28<br>28<br>28<br>28<br>28<br>28<br>28<br>28<br>2 | 0.1806<br>168<br>0.0100 | 0.3710<br>189<br>0.0010   | 0.5315<br>212<br>0.0010  | 0.3813<br>306<br>0.0010    |         | 0.5421                  | 0.0826<br>177<br>0.1380 | 0.1352<br>344<br>0.0070 | 0.5072<br>232<br>0.0010 | IA1*     | 0.4741 216 0.0010       | 0.3814<br>264<br>0.0010                     | 0.1516 257 0.0070              | 0.1456<br>436<br>0.0010 |                 | 0.1260 (<br>167<br>0.0520 (   | 0.6202 230 0.0010           | 1.0000                        | 0.0774<br>297<br>0.0920               |
| 812*  | 0.4981<br>92<br>0.0010  | 0.2896 -<br>107<br>0.0020 | -0.0154<br>110<br>0.4370 | 0.0324<br>168<br>0.3390    | ,       | -0.0741<br>77<br>0.2620 | 0.5149                  | 0.3705                  | 0.0470<br>120<br>0.3060 | M85      | 0.3838<br>162<br>0.0010 | 0.3372<br>180<br>0.0010                     | 0.6770                         | 0.5858<br>279<br>0.0010 |                 | 0.5928 C  | 0.1742 (<br>156<br>0.0150 ( | 0.0546 1<br>297 1<br>0.1740 1 | 1.0000                                |
| нвз   | 0.1345                  | 0.2422                    | 0.6491                   | 0.4512                     | ,       | 0.6434<br>88<br>0.0010  | 0.1148<br>116<br>0.1100 | 0.1865                  | 0.6685                  |          | (ABOVE [                | (COEFFICIEN<br>(ABOVE DIAGONAL - RANK CORR. | COEFFI<br>- RANK C             | SIENT / (               | CASES / BELOW D | (COEFFICIENT / CASES / SIGNIFICANCE ) RANK CORR. BELOW DIAGONAL - PRODUCT MOMENT CORR.) | ANCE )<br>- PRODUCT         | NOMENT                        | CORR.)                                |

(COEFFICIENT / CASES / SIGNIFICANCE)

| PRODUCT MOMENT CORRELATIONS (APRIL 1983) | RB6* BI3 RE7 BI4 BI5 RBB NB4* |   | 0.5607 0.3587 0.0760 0.2738 0.1930 0.5436<br>109 105 122 152 - 84 108<br>0.0010 0.0010 0.2030 0.0010 0.0390 0.0010 | 0.1331 0.1445 0.2049 0.0535 0.1343 0.2397<br>121 125 147 183 - 100 125<br>0.0730 0.0540 0.0060 0.2360 0.0910 0.0040 | 0.0703 0.4121 0.3848 0.1324 0.0777 0.2168<br>165 190 186 303 - 131 176<br>0.1850 0.0010 0.0010 0.0110 0.1890 0.0020 | 6.8391 6.3449 6.2149 6.2527 6.3702 6.7777 119 120 135 175 - 93 120 6.0010 6.0010 6.0010 6.0010 6.0010 6.0010 | -0.0190 0.4651 0.5484 0.4136 0.5624 0.0862<br>114 110 130 164 - 86 121<br>0.4210 0.0010 0.0010 0.0010 0.0010 0.1740 | 6.5390 0.0765 0.0750 0.0713 -0.2165 0.6138<br>57 46 66 68 - 44 64<br>0.0010 0.3070 0.2750 0.2820 0.0790 0.0010 | 0.1181     0.3522     0.4202     0.2499     0.4141     0.2233       161     177     202     292     -     134     169       0.0680     0.0010     0.0010     0.0010     0.0010     0.0010 | 6.6666 0.4166 -0.0656 0.1180 -0.0612 0.6341<br>89 100 108 165 - 76 97<br>0.0010 0.0010 0.2500 0.0660 0.3000 0.0010 | 0.1066 0.3648 0.5495 0.3534 0.4164 0.1253<br>108 106 124 161 - 86 108 |
|--|-------------------------------|---|--|---|---|--|---|--|---|--|---|
|  |                               | æ | est<br>CDD<br>CDC  | 9.8P.   | ; <b>18</b>   | R83#   | RB4   | RRS  | MB2   | 812*   | , MB3   |
| L 1983)                                  | P12*                          | 1 | 0.3645<br>80<br>0.0010   | 0,3603<br>89<br>0,0010  | 0.2370<br>136<br>0.0030   | 0.0731<br>71<br>0.2730   | -0.1540<br>70<br>0.1020   | 0.3768 · 36 0.0120   | 0.1420<br>119<br>0.0620   | 1.0000 .   | -0.1086<br>67   |
| (APRIL                                   | 윭                             |   | 0.1241 136 0.0750  | 0.3997  | 0.2157<br>242<br>0.0010   | 0.2503<br>164<br>0.0010  | 0.3942<br>153<br>0.0010   | 0.0382<br>71<br>0.3760   | 1.0000  | 0.0354   | 148   |
| ATIONS                                   | #  <br>#                      | • | 0.5699<br>48<br>0.0010   | -0.0102<br>58<br>0.4700   | 0.1629<br>61<br>0.1050  | 0.4152<br>62<br>0.0010   | -0.0764<br>57<br>0.2870   | 1.0000   | 0.1338<br>71<br>0.1330  | 0.7097<br>36<br>0.0010   | 0.0241  |
| K CORREL                                 | RP4                           | • | -0.0971<br>93<br>0.1780  | 0.2675 -<br>116<br>0.0020   | 0.3396  | 0.2943   | 00000   | -0.0751<br>57<br>0.2890  | 0.4165<br>153<br>0.0010   | -0.0853 (70 0.2410 (   | 0.3662 (  |
| SPEARMAN RANK CORRELATIONS               | RB3#                          |   | 0.3343 -   | 0.0634<br>121<br>0.2450   | 0.1550 159 0.0260   | 1.0000   | 0.1405  | 0.5834 -0.0751<br>62 57<br>0.0010 0.2890   | 0.1813 (  | 0.1327 -c<br>71<br>0.1350 (  | 0.3702 0  |
| AND SPEA                                 | 18B                           |   | 0.0681 (<br>126<br>0.2250 (  | 0.1471 (<br>158<br>0.0330 (   | 1.0000  | 0.0857 1<br>159 1<br>0.1410  | 0.3744 0<br>140<br>0.0010 0   | 0.1378 0<br>61<br>0.1450 0   | 0.1876 0<br>242<br>0.0020 0   | 0.1170 0<br>136<br>0.0870 0  | 0.1489 0  |
|  | P.B.2                         |   | -0.0351 0<br>107<br>0.3600 0   | 1.0000 0<br>838838<br>338888 0  | 0.1403 1<br>158 8<br>0.0390 8   | 0.1403 0<br>121<br>0.0620 0  | 0.2772 0<br>116<br>0.0010 0   | 0.0344 0<br>58<br>0.3990 0   | 0.4041 0 163 0.0010 0   | 0.3790 0<br>89<br>0.0010 0   | 0.3220 0  |
|  |                               |   | 1.0000 -0<br>sassas  | -0.0149 1<br>107 8<br>0.4390 3  | 0.0855 0<br>126<br>0.1710 0   | 0.3548 0.104<br>0.0010 0.  | -0.0043 0.93 0.4840 0.  | 0.5292 0.48<br>0.0010 0.   | 0.0967 0.<br>136<br>0.1310 0.   | 0.5533 0.80<br>80<br>0.0010 0.   | 0.0251 0.<br>94   |
| PRODUCT MOMENT                           | RB1#                          | • | - = =  |   |   |  |   |  |   | -  |   |

RB3\*

E

RP1+

811

RB2

RB5#

RB4

8124

**HB**2

. E83

#### ICUEFFICIENI / CASES / SIGNIFICANCE)

BELOW DIAGONAL - PRODUCT MOMENT CORR.)

(ABOVE DIAGONAL - RANK CORR.

| MES     | ž<br>į | • | , | 0.0206 | 135 | 0.4060 | 0.1143 | 120 | 0.0820 | 0.3163 | 207 | 0.0010 | 0.1646 | 143 | 0.0250 | 0.5213 | 138 | 0.0010 | -0.1641 | 79       | 0.0970 | 0.3501 | 214 | 0.0010 | -0.0781 | 113      | 0.2060 | 0.6458 | 127     | 0.0010 |
|---------|--------|---|---|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|---------|----------|--------|--------|-----|--------|---------|----------|--------|--------|---------|--------|
| I A [ * | !      |   | • | 0.4808 | 169 | 0.0010 | 0.2373 | 193 | 0.0010 | 0.0836 | 339 | 0.0620 | 0.6303 | 200 | 0.0010 | 0.0545 | 179 | 0.2340 | 0.4557  | 11       | 0.0010 | 0.1626 | 328 | 0.0020 | 0.5590  | 176      | 0.0010 | 0.1376 | 180     | 0.0330 |
| MB4#    | 1      |   | • | 0.5436 | 108 | 0.0010 | 0.2397 | 125 | 0.0040 | 0.2168 | 176 | 0.0020 | 0.7777 | 120 | 0.0010 | 0.0862 | 121 | 0.1740 | 0.6138  | <b>9</b> | 0.0010 | 0.2233 | 169 | 0.0020 | 0.6341  | 47       | 0.0010 | 0.1253 | 108     | 0.0980 |
| REB     | 1      |   | • | 0.1930 | 84  | 0.0390 | 0.1343 | 001 | 0.0910 | 0.0777 | 131 | 0.1890 | 0.3702 | 93  | 0.0010 | 0.5624 | 98  | 0.0010 | -0.2165 | 7        | 0.0790 | 0.4141 | 134 | 0.0010 | -0.0612 | 76       | 0.3000 | 0.4164 | 98      | 0.0010 |
| 915     | }      |   | • |        | 1   |        |        | •   |        |        | 1   |        |        | •   |        |        | 1   |        |         | ı        |        |        | •   |        |         | •        |        |        | 1       |        |
| PI4     | 1      |   | • | 0.2738 | 152 | 0.0010 | 0.0535 | 183 | 0.2360 | 0.1324 | 303 | 0.0110 | 0.2527 | 175 | 0.0010 | 0.4136 | 164 | 0.0010 | 0.0713  | 89       | 0.2820 | 0.2499 | 292 | 0.0010 | 0.1180  | 165      | 0,0660 | 0.3534 | 191     | 0.0010 |
| RET     | 1      |   | • | 0.0760 | 122 | 0.2030 | 0.2049 | 147 | 0900.0 | 0.3848 | 186 | 0.0010 | 0.2149 | 135 | 0900.0 | 0.5484 | 130 | 0.0010 | 0.0750  | 99       | 0.2750 | 0.4202 | 202 | 0.0010 | -0.0656 | 108      | 0.2500 | 0.5495 | 124     | 0.0010 |
| BI3     |        |   | 1 | 0.3587 | 105 | 0.0010 | 0.1445 | 125 | 0.0240 | 0.4121 | 190 | 0.0010 | 0.3449 | 120 | 0.0010 | 0.4651 | 110 | 0.0010 | 0.0765  | \$       | 0.3070 | 0.3522 | 111 | 0.0010 | -0      | <u>8</u> | 0.0010 | 0.3648 | 106     | 0.0010 |
| *       | !      |   |   | 07     | 6   | 9      | 31     | _   | 20     | 03     | רע  | 20     | 91     | 6   | 2      | 8      | 4   | 2      | 2       | _        | 9      | 8      | _   | 80     | 99      | 6        | 2      | 99     | <b></b> | 9      |

B12+

**18** 

MB3

|                         | SPE                     | SPEARMAN RA                                | RANK CORRELATIONS       | RELATION | S (APRIL                | (L 1983)                |                         |                        |  | PRODUCT MOMENT           |   | AND SPE                 | AND SPEARMAN RANK CORRELATIONS | K CORRE | LATIONS   | (APR 1L                           | 1983)                    |                         |
|-------------------------|-------------------------|--|-------------------------|----------|-------------------------|-------------------------|-------------------------|------------------------|--|--------------------------|---|-------------------------|--------------------------------|---------|---|-----------------------------------|--------------------------|-------------------------|
| 8 1 1                   | B13                     | RB7  | 914                     | B15      | R.B.B                   | FF -                    | 1A1                     | M  <br>M  <br>M        |  | RB6*                     | 813   | RB7                     | F14                            | B15     | RB  | #B6+                              | IA1+                     | 100  <br>004  <br>EL    |
| •                       | •                       | •  | •                       | •        | •                       | ,                       | 1                       | t                      | 988<br>*                                   | 1.0000<br>38888<br>88888 | 0.3892                                      | 0.0654                  | 0.2540 193 0.0010              |         | 0.2297  | 0.6327                            | 0.3891                   | 0.0225<br>153<br>0.3920 |
| 0.5556<br>109<br>0.0010 |                         | 0.3263 -0.0006<br>105 122<br>0.0010 0.4980 | 0.3296<br>152<br>0.0010 | •        | 0.1052<br>84<br>0.1710  | 0.5026<br>108<br>0.0010 | 0.3859                  | -0.005<br>135<br>0.475 | B13  | 0.3290<br>114<br>0.0010  | 1.0000<br>88888<br>88888                    | 0.3801                  | 0.4692 229 0.0010              | •       | 0.3880  | 0.3882<br>137<br>0.0010           | 0.3946                   | 0.4677<br>167<br>0.0010 |
| 0.0307<br>121<br>0.3690 | 0.1471 125 0.0510       | 0.1979                                     | 0.0471<br>183<br>0.2640 | •        | 0.1410                  | 0.1658<br>125<br>0.0330 | 0.2415 193 0.0010       | 0.118<br>150<br>0.075  | RB7  | 0.0537<br>143<br>0.2620  | 0.4093                                      | 1.0000                  | 0.4137<br>231<br>0.0010        |         | 0.5962 104 0.0010   | 0.0003 -                          | -0.0088<br>245<br>0.4460 | 0.7222<br>169<br>0.0010 |
| 0.1997                  | 0.4393                  | 0.4229<br>186<br>0.0010                    | 0.1813                  | •        | 0.1977                  | 0.2755<br>176<br>0.0010 | 0.1960 339 0.0010       | 0.343<br>207<br>0.001  | 814  | 0.2008<br>193<br>0.0030  | 0.4842 229 0.0010                           | 0.3645 231 0.0010       | 1.0000                         | •       | 0.3146<br>155<br>0.0010   | 0.3459<br>195<br>0.0010           | 0.0588<br>417<br>0.1160  | 0.4489<br>254<br>0.0010 |
| 0.6121                  | 0.3573                  | 0.2001                                     | 0.3687                  | •        | 0.3627                  | 0.5324<br>120<br>0.0010 | 0.3670<br>200<br>0.0010 | 0.229<br>143<br>0.003  | BIS  | •                        |   |                         | 1                              | 1.0000  | •   | •                                 |                          | •                       |
| 0.1096<br>114<br>0.1230 | 0.4077                  | 0.5487                                     | 0.4196<br>164<br>0.0010 | •        | 0.5415<br>86<br>0.0010  | 0.1931 121 0.0170       | 0.0803<br>179<br>0.1430 | 0.503<br>138<br>0.001  | RBB  | 0.2571                   | 0.4880                                      | 0.5715                  | 0.3083<br>155<br>0.0010        | •       | 1.0000  | 0.2289                            | 0.2739                   | 0.5779                  |
| 0.5235<br>57<br>0.0010  | 0.1645<br>46<br>0.1380  | 0.0225<br>66<br>0.4290                     | 0.0971<br>68<br>0.2160  | •        | 0.0041                  | 0.4038<br>64<br>0.0010  | 0.3935                  | -0.198<br>64<br>0.058  | ** 64 64 64 64 64 64 64 64 64 64 64 64 64  | 0.8947<br>128<br>0.0010  | 0.3663                                      | 0.0769<br>149<br>0.1760 | 0.2635<br>195<br>0.0010        | •       | 0.2656<br>91<br>0.0050  | 1.0000                            | 0.4567<br>216<br>0.0010  | 0.1813                  |
| 0.1938<br>161<br>0.0070 | 0.3623                  | 0.4264 202 0.0010                          | 0.3093 292 0.0010       | 8        | 0.4447                  | 0.3258<br>169<br>0.0010 | 0.2390<br>328<br>0.0010 | 0.366<br>214<br>0.001  | #<br># # # # # # # # # # # # # # # # # # # | 0.7138<br>210<br>0.0010  | 0.4232<br>257<br>0.0010                     | 0.0167<br>245<br>0.3970 | 0.0440<br>417<br>0.1850        | •       | 0.2476<br>166<br>0.0010   | 0.7608<br>216<br>0.0010           | 1.0000                   | 0.1292<br>272<br>0.0170 |
| 0.5853<br>89<br>0.0010  | 0.4052                  | -0.0419<br>108<br>0.3340                   | 0.1510<br>165<br>0.0270 | •        | -0.1222<br>76<br>0.1470 | 0.4574<br>97<br>0.0010  | 0.4748<br>176<br>0.0010 | -0.113<br>113<br>0.117 | ##<br>88.5                                 | 0.0313                   | 0.5652<br>167<br>0.0010                     | 0.6932<br>169<br>0.0010 | 0.3217 254 0.0010              | •       | 0.5983  | 0.1676                            | 0.1422 272 0.0090        | 1.0000                  |
| 0.1189<br>108<br>0.1110 | 0.3488<br>106<br>0.0010 | 0.5862<br>124<br>0.0010                    | 0.3591                  | •        | 0.4644<br>86<br>0.0010  | 0.1622<br>108<br>0.0470 | 0.1593                  | 0.653                  |  | (ABOVE                   | (COEFFICIEN<br>(ABOVE DIAGONAL - RANK CORR. | COEFF - RANK            | ICIENT /                       | CASES / | (COEFFICIENT / CASES / SIGNIFICANCE)<br>RANK CORR. BELON DIAGONAL - PRO | .ANCE)<br>- PRODUCT MOMENT CORR.) | T HOMENT                 | CORR.                   |

R83\*

RB4

R85#

RBI

RB2

H81

BII

0.0738 -0.3045 0.5660 53 105 83 0.3000 0.0010 0.0010

0.5859 50 0.0010

-0.3578 41

0.3595 214 0.0010

0.0907 326 0.0510

0.2231 125 0.0060

0.3802 128 0.0010

0.1759 136 0.0200

0.3672 0.5533 0.3082 0 87 89 192 0.0010 0.0010 0.0010 0

0.3949 216 0.0010

0.2754 349 0.0010

0.2387 130 0.0030

0.0792 128 0.1870

0.3600 152 0.0010

0.1132 0.1009 ( 92 190 0.1410 0.0830 (

0.3966 96 0.0010

0.0444 128 0.3090

0.2897

0.3886

0.0950 74 0.2100

188

101+

MB4#

RB8

2

(OCTOBER 1983)

SNO

#### (COEFFICIENT / CASES / SIGNIFICANCE)

BELOW DIAGONAL - PRODUCT MOMENT CORR.)

(ABOVE DIAGONAL - RANK CORR.

0.4969 125 0.0010

0.4556 0.1768 0.0848 0 82 81 178 0.0010 0.0570 0.1300 0

 0.0738
 0.4960
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 63
 155
 99

 0.2860
 0.0010
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NK CORRELATIONS (OCTOBER 1983)

 0.1937
 0.4673
 0.3940
 0.0823

 86
 88
 202
 149

 0.0370
 0.0010
 0.0010
 0.1600

W.

1414

MR4+

REB

B15

 0.3005
 0.3265
 0.3101
 0.3266

 75
 87
 212
 144

 0.0050
 0.0020
 0.0010
 0.0010

0.5181 -0.2961 -0.2112 0.4674 100 103 233 167 0.0010 0.0020 0.0010 0.0010 
 0.2471
 0.3064
 -0.0242
 0.3775

 143
 138
 396
 242

 0.0020
 0.0010
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1.0000

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| PRODUCT MOMENT AND SPEARMAN RAN | RES+ B13 RB7 R14 | 1.0000 0.3208 0.1242 0.2302<br>******* 94 134 180<br>************************************ | 0.4071 1.0000 0.2180 0.2913<br>94 88888 126 180<br>0.0010 88888 0.0080 0.0010 | 0.1661 0.2389 1.0000 0.3314<br>134 126 88888 215<br>0.0280 0.0040 88888 0.0010 | 0.1840 0.3378 0.2148 1.0000<br>180 180 215 #####<br>0.0070 0.0010 0.0010 ##### |                         | 0.2573 0.3822 0.5225 0.1680<br>86 75 100 143<br>0.0080 0.0010 0.0010 0.0220 | 0.5418 0.4712 -0.2394 0.3164<br>88 87 103 138<br>0.0010 0.0010 0.0070 0.0010 | 0.5342 0.4218 -0.1485 0.0678<br>202 212 233 396<br>0.0010 0.0010 0.0120 0.0890 | 0.0825 0.3807 0.4939 0.2442<br>149 144 167 242<br>0.1590 0.0010 0.0010 0.0010 | (COEFFICIENT / (<br>(ABOVE DIAGONAL - RANK CORR. |
|---------------------------------|------------------|---|---|--|--|-------------------------|---|--|--|---|--|
|                                 |                  | RR6#  | E118  | RB7  | 914  | 815                     | RR8   | MB4*   | IA1*   | <b>38</b>   |  |
|                                 |                  |   | <b>.</b>  | - 0  | и •  | <b>8</b> 0              | <b>o</b> - 0  | ₹ 0  | 0 2  | м 0   | m o  |
|                                 | 882              | 1   | 0.0814<br>128<br>0.1810   | 0.4201   | 0.3425<br>216<br>0.0010  | 0.2158<br>136<br>0.0060 | 0.5099<br>83<br>0.0010  | -0.0844<br>61<br>0.2590  | 0.3612<br>214<br>0.0010  | 0.1233<br>99<br>0.1120  | 0.5113   |
|                                 | 1414             | 1   | 0.2108<br>170<br>0.0030   | 0.1005<br>190<br>0.0840  | 0.2470<br>349<br>0.0010  | 0.2709<br>192<br>0.0010 | -0.3109<br>105<br>0.0010  | 0.3387<br>75<br>0.0020   | 0.0243<br>326<br>0.3310  | 0.4079<br>155<br>0.0010   | -0.0239<br>178<br>0.3760                         |
| (OCTOBER 1983)                  | MB4#             | •   | 0.3492  | 0.0028<br>92<br>0.4900   | 0.2347   | 0.3782<br>89<br>0.0010  | -0.0338 -<br>53<br>0.4060   | 0.5059<br>46<br>0.0010   | 0.1159   | 0.4925<br>63<br>0.0010  | 0.0069 -<br>81<br>0.4760                         |
| !                               | 88<br>1          | ı   | 0.0494  | 0.3796<br>96<br>0.0010   | 0.0135   | 0.3774<br>87<br>0.0010  | 0.6206 - 50   | -0.1321<br>41<br>0.2060  | 0.3461 128 0.0010  | -0.0467<br>61<br>0.3610   | 0.4785<br>82<br>0.0010                           |
| CORRELATIONS                    | 815              | •   | - 1   | ı  | 1  | 1                       | •   | 1  | •  | 1   | 1  |
| RANK CORR                       | B14              | •   | 0.1446<br>153<br>0.0380   | 0.2501   | 0.1671<br>297<br>0.0020  | 0.2479<br>169<br>0.0010 | 0.3897  | 0.0875<br>65<br>0.2450   | 0.2899<br>278<br>0.0010  | 0.2316<br>143<br>0.0030   | 0.3369<br>158<br>0.0010                          |
| SPEARMAN RA                     | RB7              |   | 0.1506<br>118<br>0.0520   | 0.5389   | 0.1822<br>185<br>0.0070  | 0.2751 129 0.0010       | 0.5146<br>79<br>0.0010  | -0.2098<br>64<br>0.0490  | 0.4313<br>193<br>0.0010  | 0.0689<br>91<br>0.2590  | 0.5708<br>119<br>0.0010                          |
| SPEA                            | R13              | •   | 0.3290<br>91<br>0.0010  | 0.2555<br>107<br>0.0040  | 0.3872<br>168<br>0.0010  | 0.3367<br>102<br>0.0010 | 0.4419<br>58<br>0.0010  | 0.0991 -0.2098<br>39 64<br>0.2750 0.0490                                     | 0.2492<br>152<br>0.0010  | 0.1964  | 0.3072<br>94<br>0.0020                           |
|                                 | RB6#             | •   | 0.5253<br>101<br>0.0010   | 0.1188   | 0.1667<br>163<br>0.0170  | 0.5335                  | -0.0357<br>71<br>0.3840   | 0.6204<br>55<br>0.0010   | 0.2367<br>156<br>0.0020  | 0.6222  | -0.0190<br>106<br>0.4240                         |
|                                 |                  |   | RB18  | RBS  | 181  | RB3#                    | RB4   | RB5*   | MB2  | 812*  | MB3  |

0.1037 271 0.0450

0.0065 0.5440 1.0000 0 158 156 ##### 0.4680 0.0010 ##### 0 1.0000

0.3946 0.2465 0.2046 1 115 114 271 8 0.0010 0.0040 0.0010 8 BELOW DIAGONAL - PRODUCT MOMENT CORR.)

(COEFFICIENT / CASES / SIGNIFICANCE)

CASES / SIGNIFICANCE)

| - All Analysts<br>- Starred Analysts<br>- Unstarred Analysts | All Analysts<br>Starred Analysts | Unstarred Analysts | - All Analysts | - Starred Analysts | - Unstarred Analysts | All Analysts | Starred Analysts | Unstarred Analysts | - All Analysts | - Starred Analysts | - Unstarred Analysts |
|--|----------------------------------|--------------------|----------------|--------------------|----------------------|--------------|------------------|--------------------|----------------|--------------------|----------------------|
| October 1981<br>October 1981<br>October 1981                 | April 1982 -<br>April 1982 -     | April 1982 -       | October 1982   | October 1982       | October 1982         | April 1983 - | April 1983       | April 1983 -       | October 1983   | October 1983       | October 1983         |
| B1(a)<br>B1(b)<br>B1(c)                                      | B7(a)<br>B7(b)                   | B7(c)              | B13(a)         | B13(b)             | B13(c)               | B19(a)       | B19(b)           | B19(c)             | B25(a)         | B25(b)             | B25(c)               |

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| STARRED  | Independ    | DIVOP     | 1                | 1.20700          | •                | •                | 0.91778          | ı                | 0.94481  | 0.66225          | 1                | 1                | •                     | ŧ                     | •                | (Numbers i                                     |
|----------|-------------|-----------|------------------|------------------|------------------|------------------|------------------|------------------|----------|------------------|------------------|------------------|-----------------------|-----------------------|------------------|--|
|          |             | BETA      | 0.06749          | ,                | ŝ                | •                | 0.03866 (2.6802) | 0.10331          | 0.07942  | 0.07671          | 0.03318 (2.2479) | 0.02912          | 0.03781               | ı                     | 0.01143          | ė  |
| Analysts |             | INTERCEPT | 0.11605          | 0.15780 (38.704) | 0.14873          | 0.16916 (69.621) | 0.12653 (10.265) | 0.10924          | 0.11892  | 0.13450 (10.679) | 0.14008          | 0.14380          | -0.02647              | -0.01708              | -0.02145         |  |
|          |             | Variable  | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET   | EXPRET           | EXPRET           | EXPRET           | CRRETI                | CRRET1                | CRRET1           |  |
|          |             |           |                  |                  |                  |                  |                  | •                |          |                  |                  |                  |                       |                       |                  |  |
| - ·      |             |           |                  |                  |                  |                  |                  |                  |          |                  |                  |                  |                       |                       |                  | ê  |
| 1981     |             | Cases     | 400              | 400              | 400              | 400              | 400              | 400              | 400      | 400              | 400              | 400              | 400                   | 400                   | 400              | į  |
| October  | 1           | R-Square  | 0.13250          | 0.23520          | 0.08210          | 0.07730          | 0.26660          | 0.13370          | 0.28400  | 0.29240          | 0.14010          | 0.14510          | 0.29270               | 0.35700               | 0.35740          | 8<br>8<br>8<br>5<br>5<br>8                     |
| 0 1 0 1  |             | CRR16     | •                | •                |                  | •                | •                | ı                | ٠        | •                | . •              | 0.01580          | 1                     | •                     | •                | 8<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 |
| Month    |             | CRRIA     | 1                | •                | , .              | Đ                | •                | ,                | •        | ŧ                | 0.01588          | 1                | •                     | •                     | ı                | - Values)                                      |
|          | Variables   | CRSTD1    | *                | •                | 0.24222 (6.0573) | b                | •                | -0.09773         | -0.23820 | -0.29096         | 1                |                  | •                     | 0.30788               | 0.26761 (6.4069) | parantheses are T - Values)                    |
|          |             | CRRET1    | •                |                  | ٠                | 0.45747          |                  | •                | •        | 0.20472 (2.3933) | 1                |                  | •                     | 1                     | •                |  |
| ALL      | Independent | DIVOP     | ,                | 0.73339          | •                | •                | 0.60896          | •                | 0.65778  | 0.64827          | 1                | b                | •                     | 1                     | 1                | (Numbers in                                    |
|          |             | BETA<br>  | 0.03570 (7.8716) |                  | •                | 1                | 0.01947          | 0.04562 (4.9714) | 0.04233  | 0.04127          | 0.02950          | 0.02802          | 0.03255               | ı                     | 0.00540          |  |
| Analysts |             | INTERCEPT | 0.14570          | 0.16087          | 0.16200          | 0.17570 (136.90) | 0.14491          | 0.14361 (29.318) | 0.13975  | 0.14276 (30.894) | 0.14954 (30.357) | 0.15072 (30.412) | -0.02015<br>(-7.8621) | -0.01225<br>(-7.1792) | -0.01443         | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0           |
| •        |             | Variable  | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET   | EXPRET           | EXPRET           | EXPRET           | CRRET1                | CRRETI                | CRRETI           |  |

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| October           |   | Adjusted<br>R-Square                     | 0.17000     | 0.23130           | 0.08080                    | 0.25700             | 0.26990          | 0.18020                     | 0.28690                                   | 0.37240  | 0.28190           | 0.29870                         | 0.27510     | 0.31550                       | 0.31620                         |   |
|-------------------|---|--|-------------|-------------------|----------------------------|---------------------|------------------|-----------------------------|---|--|-------------------|---------------------------------|-------------|-------------------------------|---------------------------------|---|
| ,                 |   | CRR16                                    | •           | ,                 | •                          | 1                   | 1                | •                           |   | 1  | 1                 | 0.06840                         | 1           | •                             | ı                               |   |
| Month             |   | CRR1A                                    |             | ,                 | ,                          | •                   | •                | •                           |   |  | 0.07564           | •                               | 1           | 1                             | •                               | Values)                                 |
|                   | Variables   | CRSTD1                                   |             | •                 | 0.43811 (3.3732)           | •                   | •                | -0.38050                    | -0.44199                                  | 0.86144 -0.66497<br>(4.0823) (-3.0198)                       | •                 | •                               | •           | 0.37079 (7.4423)              | 0.28020                         | (Numbers in parantheses are T - Values) |
|                   |   | CRRET1                                   | •           | ı                 | •                          | 1.15440 (6.4672)    | •                | •                           | ı   | 0.86144  | •                 | •                               | •           | ,                             | • .                             | paranthe                                |
| STARRED           | Independent   | DIVOP                                    | 1           | 1.20700           | ,                          | ,                   | 0.91778 (4.1228) | •                           | 0.94481                                   | 0.66225  | •                 |                                 |             | •                             | •                               | Numbers in                              |
| 0 0               |   | BETA                                     | 0.06749     | Þ                 | ş                          | ı                   | 0.03866 (2.6802) | 0.10331                     | 0.07942                                   | 0.07671 (3.2239)   | 0.03318 (2.2479)  | 0.02912                         | 0.03781     | ı                             | 0.01143                         |   |
| Analysts          |   | INTERCEPT                                | 0.11605     | 0.15780 (38.704)  | 0.14873                    | 0.16916 (69.621)    | 0.12653 (10.265) | 0.10924                     | 0.11892                                   | 0.13450 (10.679)   | 0.14008           | 0.14380                         | -0.02647    | -0.01708                      | -0.02145                        |   |
|                   |   | Variable                                 | EXPRET      | EXPRET            | EXPRET                     | EXPRET              | EXPRET           | EXPRET                      | EXPRET                                    | EXPRET   | EXPRET            | EXPRET                          | CRRETI      | CRRET1                        | CRRET1                          |   |
|                   |   |  |             |                   |                            |                     |                  |                             |   |  |                   |                                 |             |                               |                                 |   |
| 1981              |   | Cases                                    | 400         | 400               | 400                        | 400                 | 400              | <b>4</b> 00                 | 400                                       | 004  | 400               | 400                             | 400         | 400                           | 004                             | ŧ                                       |
| October 1981      | bd.<br>iii.   | 3 1                                      | 0.13250 400 | 0.23520 400       | 0.08210 400                | 0.07730 400         | 0.26660 400      | 0.13370 400                 | 0.28400 400                               | 0.29240 400  | 0.14010 400       | 0.14510 400                     | 0.29270 400 | 0.35700 400                   | 0.35740 400                     | ŧ                                       |
|                   | 4   |  |             |                   |                            |                     | -                |                             | -   |  |                   |                                 |             |                               |                                 | ξ                                       |
| October           | A   | R-Square                                 | 0.13250     | 0.23520           | 0.08210                    | 0.07730             | 0,26660          | 0.13370                     | 0.28400                                   | 0.29240  | 0.14010           | 0.14510                         | 0.29270     | 0.35700                       | 0.35740                         |   |
| October           | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | CRR16 R-Square                           | - 0.13250 4 | - 0.23520         | 0.08210                    | - 0.07730           | 0,26660          | - 0.13370                   | - 0.28400                                 | - 0.29240  | - 0.14010         | 0.01580 0.14510 (2.6162)        | - 0.29270   | - 0.35700                     | - 0.35740                       |   |
| October           | Variables   | CRSTD1 CRRIA CRRIG R-Square              | - 0.13250   | 0.23520           | 0.08210                    | - 0.07730           | - 0,26660        | - 0.13370                   | - 0.28400                                 | 0.29240  | 0.01588 - 0.14010 | - 0.01580 0.14510 4<br>(2.6162) | - 0.29270   | - 0.35700                     | 0.35740                         |   |
| October           | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | CRSIDI CRRIA CRRIG R-Square              | - 0.13250   | 0.23520           | 0.08210                    | 0.07730             | - 0,26660        | -0.09773 0.13370 (-1.2427)  | -0.23820 0.28400 (-3.2577)                | -0.29096 0.29240 (-3.8305)                                   | 0.01588 - 0.14010 | - 0.01580 0.14510 4<br>(2.6162) | - 0.29270   | 0,30788 0,35700               | 0.26761 0.35740 (6.4089)        |   |
| Manth October     | Variables   | CRRETI CRSTD1 CRRIA CRRIG R-Square       | . 0.13250   | 0,23520           | - 0.24222 0.08210 (6.0573) | 0.45747 0.07730 4   | 0.25660          | 0.13370 0.13370             | 0.657780.23820 0.28400 (9.1819) (-3.2577) | 0.64827 0.20472 -0.29096 0.29240 (9.0888) (2.3933) (-3.8305) | 0.01588 - 0.14010 | 0.01580 0.14510                 | 0.29270     | - 0,30788 0,35700<br>(14,918) | - 0.26761 0.35740<br>(6.4069)   | (Mumbers in parantheses are T - Values) |
| ALL Month October | Variables   | DIVOP CRRETI CRSIDI CRRIA CRRIG R-Square |             | 0.73339 0.23520 4 | 0.24222 0.08210 (6.0573)   | - 0.45747 0.07730 4 | 0.60896 0.26660  | 0.09773 0.13370 - (-1.2427) | 0.657780.23820 0.28400                    | 0,20472 -0.29096 0.29240 (2.3933) (-3,8305)                  | (2.1263)          | 0.01580 0.14510 4               | 0.29270     | - 0.30788 0.35700             | - 0.26761 - 0.35740<br>(6.4069) | (Musbers in parantheses are T - Values) |

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|              |                    |         | ınaependent      |          | Variables   |          |          | Adjusted |   |
| TNI          | INTERCEPT          | BETA    | DIVOP            | CRRET1   | CRSTD1  | CRR1A    | CRR16    | R-Square |   |
| 6.7          | 0.15704            | 0.02671 | 1                | •        | 1   | ,        | ,        | 0.06650  |   |
| 1.0          | 0.16285            | •       | 0.74654 (9.2145) | •        | •   | •        |          | 0.21800  |   |
| 6.1          | 0.17084 (42.694)   | •       | •                | 1        | 0.16278   | •        |          | 0.03180  |   |
| 0.1          | 0.18373            | •       | ,                | -0.01098 | ,   | 1        | •        | -0.00330 |   |
| 0.1          | 0.15518 (29.812)   | 0.00934 | 0.68849          | 1        | •   | ,        | •        | 0.22260  |   |
| 0.1          | 0.15261            | 0.04573 | <u>.</u>         | •        | -0.18473 (-1.7854)  | t        | ,        | 0.07320  |   |
| 0.1          | 0.14954 (26.516)   | 0.03302 | 0.70247          | 1        | -0.23352 (-2.4801)  | 1        | 1        | 0.23580  |   |
| 0.1          | 0.14282            | 0.03738 | 0.71984          | -0.38184 | 0.71984 -0.38184 -0.15439<br>(8.4064) (-3.7975) (-1.6349) | 1        | 1        | 0.26870  |   |
| 0.1          | 0.14887            | 0.03904 | •                | 1        | 1   | -0.03032 | •        | 0.09720  |   |
| 0.1          | 0.14939 (24.145)   | 0.03777 | 1                | ,        | •   | ı        | -0.02188 | 0.09020  |   |
| -0.0<br>[-7. | -0.02244           | 0.03390 | ,                | •        | 1   | •        | •        | 0.30400  |   |
| 0.0          | -0.01251 (-6.2166) | •       | •                | P        | 0.30340   | •        | •        | 0.33020  |   |
| 0.0          | -0.01739           | 0.01224 | •                | •        | 0.21038   | ı        | 1        | 0.33670  |   |

(Numbers in parantheses are 7 - Values)

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# Results from Cross - Sectional Regressions

|          | Analysts         |                  | ALL              |            |   | Nonth     |         | April                | 198   |
|----------|------------------|------------------|------------------|------------|---|-----------|---------|----------------------|-------|
|          |                  |                  | Independent      |            | Variables                               |           |         |                      |       |
| Variable | INTERCEPT        | BETA             | DIVOP            | CRRET1     | CRSTD1                                  | CRRIA     | CRR16   | Adjusted<br>R-Square | Cases |
| EXPRET   | 0.11977          | 0.06338          | ı                | •          | •                                       | •         | •       | 0.23980              | 398   |
| EXPRET   | 0.16796 (82.292) |                  | 0.55139 (8.1554) | 1          | •                                       | •         | •       | 0.14160              | 398   |
| EXPRET   | 0.15275          | •                | •                | ,          | 0.36808                                 | •         | ٠.      | 0.14060              | 399   |
| EXPRET   | 0.17619 (104.91) | •                | 1                | 0.51403    | 1                                       | •         | •       | 0.05260              | 398   |
| EXPRET   | 0.11891          | 0.05401          | 0.38358 (6.0505) | •          | •                                       | •         | ı       | 0.30250              | 398   |
| EXPRET   | 0.11246          | 0.08847 (7.6505) | •                | 1          | -0.21676                                | •         | ı       | 0.24960              | 398   |
| EXPRET   | 0.10679 (17.644) | 0.09364 (8.5540) | 0.44622 (6.9847) | 1          | -0.35558                                | •         | ı       | 0.33060              | 398   |
| EXPRET   | 0.10756 (17.616) | 0.09339          | 0.44738          | 0.10201    | -0.37798                                | •         | ŧ       | 0.33050              | 398   |
| EXPRET   | 0.11992 (20.328) | 0.06309          | •                | •          | •                                       | 0.00086   | •       | 0.23790              | 399   |
| EXPRET   | 0.12077          | 0.06167          | 1                | •          | •                                       | •         | 0.00415 | 0.23850              | 398   |
| CRRET1   | -0.01501         | 0.02760          | •                | •          | ŧ                                       | ı         | •       | 0.21830              | 398   |
| CRRET1   | -0.00654         | •                | ,                | •          | 0.23317 (12.267)                        | •         | •       | 0.27350              | 398   |
| CRRET1   | -0.00773         | 0.00260          | •                | 1          | 0.21602                                 | 1         | •       | 0.27210              | 398   |
|          | ,,               |                  | (Numbers i       | n paranthe | (Numbers in parantheses are T - Values) | - Values) |         |                      |       |

Results from Cross - Sectional Regressions

| 1982   |  | Cases                | 113     | 113              | 113              | 1113    | 113              | 113      | 113      | 113                                    | 113              | 113     | 113                | 113                     | 113                |
|--|--|----------------------|---------|------------------|------------------|---------|------------------|----------|----------|--|------------------|---------|--------------------|-------------------------|--------------------|
| April  | 100 de 10 | R-Square             | 0.32180 | 0.16530          | 0.19630          | 0.30930 | 0.35610          | 0.32990  | 0.37070  | 0.47440                                | 0.41230          | 0.42210 | 0.26560            | 0.30630                 | 0,30350            |
| • 1  |  | CRR16                | 1       | •                | ٠.               | •       | •                | •        | •        | -                                      | 1                | 0.07584 | •                  | •                       | ı                  |
| Month  |  | CRR1A                | ı       | •                | 1                | •       | •                | •        |          | t                                      | 0.08709          | 1       | •                  | •                       | ,                  |
|  | Variables  | CRSTD1               | •       | •                | 0.68239 (5.3247) | •       | •                | -0.38277 | -0.46050 | 1.14440 -0.71450<br>(4.7430) (-3.1122) | •                | 1       | ,                  | 0.29230                 | 0,23412 (2,6521)   |
| P<br>P<br>Q<br>Q<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P |  | CRRETI               | •       | 0                | •                | 1.62480 | •                | •        | •        | 1.14440                                | ı                | •       | •                  | •                       | •                  |
| STARRED  | Independent  | DIVOP                | ŧ       | 0.98471 (4.8144) | •                | •       | 0.51744 (2.6300) | •        | 0.55858  | 0.45843                                | 1                | 1       | ,                  | 1                       | •                  |
|  |  | BETA                 | 0.10997 | •                | •                | 1       | 0.09286          | 0.15294  | 0.14320  | 0.13538                                | 0.07378          | 0.07024 | 0.03463 (6.4426)   | •                       | 0.00835            |
| Analysts   | 0<br>0<br>1<br>0<br>0<br>0<br>0<br>0<br>0  | INTERCEPT            | 0.08138 | 0.16629          | 0.13590          | 0.16645 | 0.08768          | 0.06844  | 0.07261  | 0.08708                                | 0.10356 (7.2772) | 0.10729 | -0.02122 (-4.1472) | -0.00962 .<br>(-3.1601) | -0.01330 (-2.2905) |
|  |  | Variable<br>Variable | EXPRET  | EXPRET           | EXPRET           | EXPRET  | EXPRET           | EXPRET   | EXPRET   | EXPRET                                 | EXPRET           | EXPRET  | CRRET1             | CRRET1                  | CRRETI             |

(Numbers in parantheses are T - Values)

#### TABLE - B 7 (c)

| Regressions |
|-------------|
| Sectional   |
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| from (      |
| Results     |

|          | Analysts         | • 1     | UNSTARRED        |          |                  | Month    |          | April    | 1982  |
|----------|------------------|---------|------------------|----------|------------------|----------|----------|----------|-------|
|          |                  |         | Independent      |          | Variables        |          |          |          |       |
| Variable | INTERCEPT        | BETA    | DIVOP            | CRRET1   | CRSTD1           | CRRIA    | CRR16    | R-Square | Cases |
| EXPRET   | 0.12151          | 0.06158 | ,                | •        | •                | •        | •        | 0.22670  | 296   |
| EXPRET   | 0.16570 (60.897) |         | 0.65984 (6.7389) |          | •                | •        | •        | 0.13090  | 296   |
| EXPRET   | 0.15190 (35.243) | •       | •                | •        | 0.38242 (7.3176) | •        | •        | 0.15120  | 296   |
| EXPRET   | 0.17995          | •       | •                | 0.20163  | •                | •        | •        | 0.00520  | 296   |
| EXPRET   | 0.12106          | 0.05151 | 0.41221          | •        | •                | •        | •        | 0.27040  | 296   |
| EXPRET   | 0.11493          | 0.08249 | •                | •        | -0.17696         | •        | •        | 0.23060  | 296   |
| EXPRET   | 0.10730          | 0.09240 | 0.51693          | •        | -0.36768         | ŧ        | •        | 0.29350  | 296   |
| EXPRET   | 0.10428          | 0.09487 | 0.50195          | -0.32655 | -0.30724         | •        | 1        | 0.30790  | 296   |
| EXPRET   | 0.11524 (16.929) | 0.07256 | •                | •        | •                | -0.03228 | •        | 0.24860  | 296   |
| EXPRET   | 0.11555          | 0.07129 | •                | •        | •                | 1        | -0.02290 | 0.24230  | 296   |
| CRRET1   | -0.01617         | 0.02833 | •                | •        | •                | 1        | •        | 0.22740  | 296   |
| CRRET1   | -0.00614         | •       | •                | •        | 0.22555          | •        | •        | 0.25140  | 296   |
| CRRETI   | -0.00993         | 0.00846 | •                | •        | 0.16815          | •        | •        | 0.25300  | 296   |
|          |                  |         |                  |          |                  |          |          |          |       |

(Numbers in parantheses are T - Values)

|          | ent         | 8                  |                  |                  |                  | 1.3              |                  |                    |                  | 1. 4.              |                  |                  |                       |                     |  |  |
|----------|-------------|--------------------|------------------|------------------|------------------|------------------|------------------|--------------------|------------------|--------------------|------------------|------------------|-----------------------|---------------------|--|--|
| STARRED  | Independent | DIVOP              | 1                | 0.98633          | ,                |                  | 0.75258          | ,                  | 0.75279          | 0.75529            | •                | •                | 1                     | •                   | 1  |  |
| •        |             | BETA               | 0.09027          | t                | •                | ŧ                | 0.06289          | 0.07882            | 0.06324 (1.5498) | 0.06767            | 0.05792 (2.7352) | 0.05357          | 0.02965               | ,                   | -0.00389                                 |  |
| Analysts |             | INTERCEPT          | 0.08468          | 0.15038          | 0.13234 (12.952) | 0.15362 (38.854) | 0.09515 (4.9493) | 0.08943            | 0.09500          | 0.09726            | 0.10198          | 0.10618          | -0.01586              | -0.00406            | -0.00194 -0.00389<br>(-0.2413) (-0.2864) |  |
|          |             | Dependent Variable | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET             | EXPRET           | EXPRET             | EXPRET           | EXPRET           | CRRET1                | CRRET1              | CRRET1                                   |  |
|          |             |                    |                  |                  |                  |                  |                  |                    |                  |                    |                  |                  |                       |                     |  |  |
| 1982     |             | Cases              | 383              | 383              | 383              | 383              | 383              | 383                | 383              | 383                | 383              | 383              | 383                   | 383                 | 383                                      |  |
| October  |             | R-Square           | 0.10730          | 0.15840          | 0.03440          | 0.00720          | 0.21190          | 0.13080            | 0.24830          | 0.24920            | 0.10540          | 0.10500          | 0.12850               | 0.18650             | 0.18440                                  |  |
|          |             | CRR16              |                  | ,                | 1                | 1                | 1                | 1                  | ı                | ı                  | ı                | -0.00154         | ı                     | ì                   | •  |  |
| Month    |             | CRRIA              | ı                | •                | •                | 1                | ı                | 1                  | ı                | •                  | -0.00449         | 1                | •                     | •                   | 1  | - Values                               |
|          | Variables   | CRSTD1             | ı                |                  | 0.17971          | •                | ٠                | -0.27755 (-3.3595) | -0.34028         | -0.36614 (-4.5701) | •                | •                | ı                     | 0.17772 (9.4124)    | 0.18249                                  | (Nimbers in negatheres are T - Values) |
|          |             | CRRET1             | 1                |                  | 1                | 0.22669          | ı                | 1                  | ٠,               | 0.13651            | ı                | 1                | •                     | •                   | 1  | naranth.                               |
| ALL      | Independent | DIVOP              | ı                | 0.57424 (8.5392) | •                | •                | 0.48387 (7.1822) | •                  | 0.51431          | 0.52205            | 1                | 1                | •                     | •                   | 1  | Mushers ;                              |
|          |             | BETA               | 0.05229 (6.8493) | •                | •                |                  | 0.03848          | 0.09176 (6.5747)   | 0.08600          | 0.08605            | 0.05364 (6.5436) | 0.05286          | 0.02499               | •                   | -0.00096<br>(16199)                      |  |
| Analysts |             | INTERCEPT          | 0.11393          | 0.15122 (76.513) | 0.15081          | 0.16281 (85.525) | 0.11529 (16.031) | 0.09800            | 0.09584 (11.553) | 0.09592            | 0.11332          | 0.11364 (14.548) | -0.01128<br>(-3.4076) | -0.00135<br>(82423) | -0.00080 -0.00096<br>(-,21140) (-,16199) |  |
|          |             | Variable           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET             | EXPRET           | EXPRET             | EXPRET           | EXPRET           | CRRET1                | CRRET1              | CRRETI                                   |  |
|          |             |                    |                  |                  |                  |                  |                  |                    |                  |                    |                  | •                |                       |                     |  |  |

(Numbers in parantheses are T - Values)

(Numbers in parantheses are T - Values)

TABLE - P 13 (b)

# Results from Cross - Sectional Regressions

|            |          | Analysts                                 |                  | STARRED     |                  |  | Month   |         | October  | 1982  |
|------------|----------|--|------------------|-------------|------------------|--|---------|---------|----------|-------|
| É          |          |  |                  | Independent |                  | Variables                              |         |         |          |       |
| Vari       | Variable | INTERCEPT                                | BETA             | DIVOP       | CRRET1           | CRSTD1                                 | CRRIA   | CRR16   | R-Square | Cases |
| EXF        | EXPRET   | 0.08468                                  | 0.09027          | 1           | •                | •                                      | -1      |         | 0.14530  | 106   |
| <b>XX</b>  | EXPRET   | 0.15038                                  | ŧ                | 0.98633     | ŧ                | ,                                      | •       | •       | 0.17140  | 901   |
|            | EXPRET   | 0.13234 (12.952)                         |                  | ,           | •                | 0.52206                                | 1       |         | 0.11780  | 106   |
| 323        | EXPRET   | 0.15362 (38.854)                         | ŧ                | •           | 1.38880 (5.2478) | ,                                      | r       | •       | 0.20180  | 106   |
| EX         | EXPRET   | 0.09515 (4.9493)                         | 0.06289 (2.9620) | 0.75258     | 1                | •                                      | •       |         | 0.22900  | 106   |
|            | EXPRET   | 0.08943                                  | 0.07882          | 1           | ,                | 0.08371                                | 1       | ,       | 0.13780  | 106   |
|            | EXPRET   | 0.09500                                  | 0.06324          | 0.75279     | 1                | -0.00264                               | •       | ı       | 0.22150  | 106   |
| EX         | EXPRET   | 0.09726                                  | 0.06767          | 0.75529     | 1.15240 (4.2188) | 1.15240 -0.28548<br>(4.2188) (-1.1422) |         | ı       | 0.33160  | 106   |
| EXE        | EXPRET   | 0.10198                                  | 0.05792          | 1           | 1                | •                                      | 0.09090 | 1       | 0.24860  | 106   |
| EXE        | EXPRET   | 0.10618 (5.5345)                         | 0.05357 (2.5418) | •           | 1                | •                                      | •       | 0.08196 | 0.26720  | 106   |
| CRF        | CRRET1   | -0.01586                                 | 0.02965          | 1           |                  | ,                                      | 1       | t       | 0.14440  | 106   |
| , <b>%</b> | CRRET1   | -0.00406                                 | ,                | •           | •                | 0.22360                                | ı       | •       | 0.20580  | 106   |
| Ë          | CRRET1   | -0.00194 -0.00389<br>(-0.2413) (-0.2864) | -0.00389         | 1           | ı                | 0.24519 (2.8361)                       |         | ı       | 0.19870  | 106   |

| Regressions |
|-------------|
| - Sectional |
| Cross       |
| esults from |
| ~           |

| 1982        |             | Cases     | 263              | 263              | 263              | 263              | 263              | 263      | 263              | 263                                      | 263              | 263              | 263      | 263              | 263      |
|-------------|-------------|-----------|------------------|------------------|------------------|------------------|------------------|----------|------------------|--|------------------|------------------|----------|------------------|----------|
| October     |             | R-Square  | 0.16410          | 0.30620          | 0.11690          | 0.00430          | 0.35460          | 0.16100  | 0.35520          | 0.37640                                  | 0.23590          | 0.22850          | 0.15110  | 0.20290          | 0.19990  |
| 0<br>•<br>• |             | CRR16     | •                | •                | 1                | •                | 1                | •        | •                | •  | •                | -0.04327         | •        | •                | ,        |
| Month       |             | CRR1A     |                  | •                | 1                | •                | •                | ,        | 1                | 1  | -0.05608         | •                | ı        | •                | •        |
|             | Variables   | CRSTD1    | •                | 1                | 0.32359 (5.9743) |                  | •                | -0.02031 | -0.10201         | -0.01801                                 | •                | •                | ,        | 0.18672 (8.2287) | 0.18419  |
|             |             | CRRET1    | ı                | •                |                  | -0.20459         | •                | •        | •                | -0.40757 -0.01801<br>(-3.1299) (-0.1915) | 1                | ,                | •        | •                | ı        |
| UNSTARRED   | Independent | DIVOP     |                  | 1.09000          | 1                | •                | 0.92090          | •        | 0.93256 (8.9061) | 0.83064 (7.6910)                         | 1                |                  | •        | •                | •        |
| •           |             | BETA      | 0.06389          | •                | •                | •                | 0.03768          | 0.06682  | 0.05206          | 0.05387                                  | 0.08210 (8.9506) | 0.08153 (8.8171) | 0.02706  | •                | 0.00049  |
| Analysts    | <br>        | INTERCEPT | 0.10276 (11.653) | 0.14090 (54.919) | 0.13944 (30.203) | 0.16869 (75.780) | 0.10749 (13.839) | 0.10153  | 0.10136 (10.648) | 0.10029                                  | 0.09344 (10.827) | 0.09280          | -0.01384 | -0.00239         | -0.00267 |
|             |             | Dependent | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET   | EXPRET           | EXPRET                                   | EXPRET           | EXPRET           | CRRET1   | CRRETI           | CRRET1   |

TABLE - P 19 (a)

|                       | Analysts         | 6<br>0<br>0<br>0<br>0 | ALL              |         |                    | North                                   | :                                    | April    | 1983                  |
|-----------------------|------------------|-----------------------|------------------|---------|--------------------|---|--------------------------------------|----------|-----------------------|
|                       |                  |                       | Independent      |         | Variables          | 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 0<br>0<br>1<br>1<br>1<br>1<br>1<br>1 |          | 1<br>7<br>1<br>8<br>8 |
| Vependent<br>Variable | INTERCEPT        | BETA                  | 91100            | CRRET1  | CRSTD1             | CRRIA                                   | CRR16                                | R-Square | Cases                 |
| EXPRET                | 0.13946 (21.018) | 9.01375<br>(2.0754)   | •                | ,       | 1                  | •                                       | •                                    | 0.00910  | 360                   |
| EXPRET                | 0.14250 (83.564) | •                     | 0.44968          | •       | ,                  | •                                       | 1                                    | 0.13150  | 360                   |
| EXPRET                | 0.15087          | , .                   | •                | 1       | 0.02578            | •                                       | •                                    | -0.00180 | 360                   |
| EXPRET                | 0.14739 (61.147) | Đ                     | •                | 0.30751 | •                  | 1                                       | •                                    | 0.01570  | 360                   |
| EXPRET                | 0.13767          | 0.00511               | 0.44015 (7.1441) | 1       | 1                  | •                                       | •                                    | 0.13060  | 360                   |
| EXPRET                | 0.13171          | 0.03759               | •                | Þ       | -0.18492 (-2.2414) | ı                                       | ı                                    | 0.02010  | 360                   |
| EXPRET                | 0.12805          | 0.03425 (2.9356)      | 0.45381 (7.4241) | •       | -0.22815 (-2.9592) | •                                       | •                                    | 0.14910  | 360                   |
| EXPRET                | 0.12787          | 0.03335               | 0,44184          | 0.25336 | -0.26708           | •                                       | 1                                    | 0.15630  | 360                   |
| EXPRET                | 0.14083 (21.170) | 0.00776               | •                | ŧ       | •                  | 0.02058                                 | 1                                    | 0.01610  | 360                   |
| EXPRET                | 0.14188 (21.232) | 0.00644               | •                | •       | 1                  | 1                                       | 0.01913                              | 0.02050  | 360                   |
| CRRET1                | -0.00552         | 0.02427               | ı                | ,       | ,                  | •                                       | ı                                    | 0.18720  | 360                   |
| CRRET1                | 0.00309          | Þ                     |                  | •       | 0.17993            | ,                                       | 1                                    | 0.23730  | 360                   |

(Numbers in parantheses are I - Values)

0.23450 340

0.15814 (4.9123)

0.00111 0.00389 (.38063) (.79635)

CRRET1

Results from Cross - Sectional Regressions

|          | Analysts         |          | STARRED          |                  |                  | Honth            |         | April    | 1983  |
|----------|------------------|----------|------------------|------------------|------------------|------------------|---------|----------|-------|
| 1        |                  |          | Independent      |                  | Variables        |                  |         |          |       |
| Variable | INTERCEPT        | BETA<br> | DIVOP            | CRRE T1          | CRSTD1           | CRR1A            | CRR16   | R-Square | Cases |
| EXPRET   | 0.08706          | 0.08310  | 1                | •                | •                | •                | •       | 0.16000  | 101   |
| EXPRET   | 0.15271          | ì        | 0.62540          | 1                | ,                | •                | ١       | 0.05500  | 101   |
| EXPRET   | 0.11979          | 1        | 1                | ,                | 0.60618          | •                | ,       | 0.16430  | 101   |
| EXPRET   | 0.12749 (26.283) | •        | •                | 2.12420 (8.6240) | •                | •                | 1       | 0.42320  | 101   |
| EIPRET   | 0.08866 (5.0176) | 0.07409  | 0.33392          | •                | '~               | 1                | ,       | 0.16850  | 101   |
| EXPRET   | 0.10081          | 0.04046  | ı                |                  | 0.35129 (1.2783) | ı                | ,       | 0.16540  | 101   |
| EXPRET   | 0.10230          | 0.03180  | 0.33196 (1.4122) | •                | 0.34877          | 1                | 1       | 0.17380  | 101   |
| EXPRET   | 0.11266 (6.7569) | 0.00432  | 0.55604          | 2.06120 (7.2966) | 0.00440          | 1                |         | 0.46300  | 101   |
| EXPRET   | 0.10847          | 0.02364  |                  | •                | •                | 0.16151 (6.8809) | •       | 0.42790  | 101   |
| EXPRET   | 0.11588 (7.8059) | 0.01953  |                  | •                | ,                | •                | 0.12850 | 0.45190  | 101   |
| CRRET1   | -0.01105         | 0.03068  | ,                | i                | 1                | •                | •       | 0.23380  | 101   |
| CRRET1   | 0.00039          | •        |                  | •                | 0.23239          | 1                | ,       | 0.25950  | 101   |
| CRRET1   | -0.00454         | 0.01050  | •                | ı                | 0.16624 (2.0819) | •                | •       | 0.25880  | 101   |
|          |                  |          |                  | :                |                  |                  |         |          |       |

(Numbers in parantheses are T - Values)

TABLE - B 19 (c)

Results from Cross - Sectional Regressions

|          | Analysts         |  | UNSTARRED   |   |                  | Month    |          | April                | 1983  |
|----------|------------------|--|-------------|---|------------------|----------|----------|----------------------|-------|
| -        |                  |  | Independent |   | Variables        |          |          | ]                    |       |
| Variable | INTERCEPT        | BETA                                   | DIVOP       | CRRET1  | CRSTD1           | CRRIA    | CRR16    | Adjusted<br>R-Square | Cases |
| EXPRET   | 0.14733 (21.801) | 0.00176                                | •           | •   | 1                | •        | ,        | -0.00400             | 237   |
| EXPRET   | 0.14577 (64.493) | ,                                      | 0.17652     | 1   | •                | 1        | ,        | 0.00680              | 237   |
| EXPRET   | 0.15079 (38.381) | •                                      | •           | ••  | -0.02118         | •        | •        | -0.00340             | 237   |
| EXPRET   | 0.15348 (65.817) | ,                                      | 1           | -0.24985  | •                | ı        | •        | 0.01440              | 237   |
| EXPRET   | 0.14686 (21.783) | -0.00122                               | 0.18161     | •   | •                | t        | •        | 0.00270              | 237   |
| EXPRET   | 0.14284 (18.774) | 0.01577                                | ,           | 1   | -0.11091         | 1        | •        | -0.00130             | 237   |
| EXPRET   | 0.14130 (18.551) | 0.01544                                | 0.20887     | 1   | -0.13549         | •        | •        | 0.00870              | 237   |
| EXPRET   | 0.14222 (18.748) | 0.01535                                | 0.18392     | 0.18392 -0.26518 -0.08274<br>(1.6097) (-1.9558) (-0.9099) | -0.08274         | 1        | ı        | 0.02050              | 237   |
| EXPRET   | 0.14581          | 0.00904                                | •           | •   | ٠,               | -0.02614 | •        | 0.01640              | 237   |
| EXPRET   | 0.14536 (21.452) | 0.00809                                | ,           | ,   | ,                | ı        | -0.01737 | 0.01010              | 237   |
| CRRETI   | -0.00482         | 0.02322                                | 1           | 1   | •                | ,        | •        | 0.16010              | 237   |
| CRRETI   | 0.00253          | 1                                      | ı           | 1   | 0.18499          | 1        | •        | 0.22730              | 237   |
| CRRET1   | 0.00278          | 0.00278 -0.00050<br>(0.7615) (-0.0808) | 1           | 1   | 0.18784 (4.5114) | •        | •        | 0.22400              | 237   |
|          |                  |  |             |   |                  |          |          |                      |       |

(Numbers in parantheses are T - Values)

Results from Cross - Sectional Regressions

| Analysts STARRED | Month October 1983 | Analysts All | Month October |
|------------------|--------------------|--------------|---------------|
|                  |                    |              |               |

|          | =           |           | a :       |              | 3. 3             |                  |                  | 9.5              |          | 9.2              | 3.0                                    |          |                  |                       |         |           |
|----------|-------------|-----------|-----------|--------------|------------------|------------------|------------------|------------------|----------|------------------|--|----------|------------------|-----------------------|---------|-----------|
| •        |             |           | BETA      | 0.02104      | 1                | 1                | ě                | 0.01151          | 0.02882  | 0.03155          | 0.02702                                | 0.01047  | 0.00922          | 0.02178               | •       | 0.00929   |
| Analysts |             |           | INTERCEPT | 0.13049      | 0.14227 (66.121) | 0.14290 (39.886) | 0.14174 (66.002) | 0.13230 (20.984) | 0.12769  | 0.12479          | 0.12515 (17.397)                       | 0.13271  | 0.13408          | -0.00458              | 0.00482 | -0.00008  |
|          |             | Dependent | Variable  | EXPRET       | EIPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET   | EXPRET           | EXPRET                                 | EXPRET   | EXPRET           | CRRETI                | CRRET1  | CRRETI    |
| 1983     |             |           | Cases     | <del>8</del> | 8 <del>8</del>   | ₩<br>•           | <del>2</del>     | æ                | <b>8</b> | <b>₹</b>         | æ                                      | <b>₹</b> | <b>8</b>         | <b>₹</b>              | ₹.      | <b>*</b>  |
| October  |             | Adjusted  | R-Square  | 0.12810      | 0.14560          | 0.14020          | 0.43620          | 0.17790          | 0.13280  | 0.17080          | 0.45950                                | 0.43570  | 0.46890          | 0.19580               | 0.17970 | 0.19040   |
|          |             |           | CRR16     | •            | •                | 6                | •                | •                | •        | 1                | 1                                      | •        | 0.15661 (7.3226) | •                     | •       | •         |
| Month    |             |           | CRRIA     |              | •                | 0                |                  | 1                | 1        |                  | 1                                      | 0.18867  |                  | 1                     | 1       | •         |
|          | Variables   | -         | CRSTD1    |              | 1                | 0.54650 (3.8121) | •                | 1                | 0.38793  | 0.18085          | 0.09663                                | 1        | ŧ                |                       | 0.16938 | 0.05788   |
|          |             |           | CRRETI    |              | 1                | Q                | 2.41000 (8.0755) | 1                | 1        | •                | 2.18150 (6.6140)                       |          |                  |                       |         |           |
| STARRED  | Independent |           | 0100      | •            | 0.84510 (3.8913) | •                | •                | 0.59766 (2.4428) | ,        | 0.55713 (2.1707) | 0.44404                                | •        | •                | •                     | •       |           |
|          |             |           | BETA      | 0.08176      |                  | 1 .              | •                | 0.05160          | 0.02760  | 0.02840          | 0.12423 -0.01410<br>(5.6196) (-0.3496) | 0.01952  | 0.01557          | 0.02749               | 1       | 0.01941   |
| Analysts |             |           | INTERCEPT | 0.08584      | 0.14428 (26.081) | 0.12113          | 0.12453          | 0.10104          | 0.10722  | 0.10998          | 0.12423                                | 0.10843  | 0.11484 (6.6825) | -0.00998<br>(-1.7556) | 0.00299 | (-0.9136) |
|          |             | Dependent | Variable  | EXPRET       | EXPRET           | EXPRET           | EXPRET           | EXPRET           | EXPRET   | EXPRET           | EXPRET                                 | EXPRET   | EXPRET           | CRRET1                | CRRET1  | CRRET1    |

(Numbers in parantheses are T - Values)

347

0.16670

0.13949 (8.3803)

0.17210 347

0.09033 (2.8226)

(Numbers in parantheses are I - Values)

0.15540 347

TABLE - B 25 (a)

Results from Cross - Sectional Regressions

| October | 1983                      |                       | Analysts         | •       | ALL              |         |  | Month   |         | October  | 1983  |
|---------|---------------------------|-----------------------|------------------|---------|------------------|---------|--|---------|---------|----------|-------|
|         |                           |                       |                  |         | Independent      |         | Variables                              |         |         | Adjust   |       |
| Square  | 8<br>  10<br>  10<br>  10 | Dependent<br>Variable | INTERCEPT        | BETA    | DIVOP            | CRRETI  | CRSTD1                                 | CRRIA   | CRR16   | R-Square | Cases |
| 0.12810 | 98                        | EXPRET                | 0.13049          | 0.02104 | ١.               | 1       | •                                      | •       | Þ       | 0.02740  | 347   |
| .14560  | 84                        | EXPRET                | 0.14227 (66.121) | 1       | 0.38842 (4.6017) | •       |  | ١.      | •       | 0.05510  | 347   |
| 0.14020 | <b>98</b>                 | EXPRET                | 0.14290 (39.886) | 1       |                  | 1       | 0.09621                                |         | •       | 0.01360  | 347   |
| . 43620 | 94                        | EXPRET                | 0.14174 (66.002) | B       | 3                | 0.56161 |  | •       | •       | 0.06190  | 347   |
| 0.17790 | <b>8</b>                  | EXPRET                | 0.13230 (20.984) | 0.01151 | 0.32907          | 1       |  | •       | 1       | 0.06010  | 347   |
| 0.13280 | 84                        | EXPRET                | 0.12769          | 0.02882 | b                | •       | -0.05625                               | •       | •       | 0.02610  | 347   |
| .17080  | 84                        | EXPRET                | 0.12479          | 0.03155 | 0.38933          | •       | -0.15759                               | ,       | 1       | 0.06820  | 347   |
| 0.45950 | 98                        | EXPRET                | 0.12515          | 0.02702 | 0.34620          | 0.45425 | 0.45425 -0.18739<br>(3.6302) (-2.3999) | •       | 1       | 0.10010  | 347   |
| 3.43570 | 84                        | EXPRET                | 0.13271          | 0.01047 | 1                | 1       | 1                                      | 0.04048 | ı       | 0.06560  | 347   |
| 0.46890 | <b>9</b> 8                | EXPRET                | 0.13408          | 0.00922 | ı                | ı       | ,                                      |         | 0.03540 | 0.07370  | 347   |

Results from Cross - Sectional Regressions

| Independent   Variables  | Analysts | sts         |                  | UNSTARRED        |          |                  | Month    |          | October  | 1983  |
|--|----------|-------------|------------------|------------------|----------|------------------|----------|----------|----------|-------|
| BETA DIVOP CRRETI CRSTDI CRRIA CRRIG R-Square  0.01331 0.54111 0.10950 0.54111 0.10950 0.12350  1.040433 0.52661 0.13615 0.02110  0.00139 0.51948 0.13615 0.11980  0.00139 0.51948 0.02290 0.11980  0.01622 0.01244 0.0431 0.01390  0.01623 0.1244 0.0431 0.01990  0.01623 0.1244 0.0431 0.11980  0.01637 0.1144 0.0431 0.10549  0.01537 0.11647 0.13699)  0.02389 0.16441 0.15699)  0.02389 0.16441 0.20330  0.00339 0.16147 0.20330  0.00339 0.12157 0.20330   |          |             |                  | Independ         |          | riables          |          |          | 4        |       |
| 0.01331         -         -         -         0.01070           -         0.54111         -         -         0.10950         -         -         0.12550           -         (5.7175)         -         0.10950         -         -         0.12550           -         -         0.00078         -         -         0.1250         -         -         0.02110           0.02220         (-5.2828)         -         -         0.13615         -         -         0.01730           0.02450         -         -         0.13648         -         0.12160         -         0.11740           0.02580         -         -         0.12849         -         0.12160         -         0.11740           0.02624         0.51928         -         0.12840         -         -         0.11740           0.02628         0.51928         -         -         -         0.01730         -         -         0.11740           0.02629         -         -         -         -         -         0.11740         -         0.11740           0.02623         -         -         -         -         -         0.117450 <th< td=""><td>INTER</td><td>1433</td><td>BETA</td><td>DIVOP</td><td>CRRET1</td><td>CRSTD1</td><td>CRRIA</td><td></td><td>R-Square</td><td>Cases</td></th<> | INTER    | 1433        | BETA             | DIVOP            | CRRET1   | CRSTD1           | CRRIA    |          | R-Square | Cases |
| -  | 0.137    | 770         | 0.01331          | ,                | b        | 1                | 1        | 1        | 0.01070  | 228   |
| 0.010950 0.002110  0.00433  0.52661 0.00008  0.00434  0.13615 0.13100  0.00439  0.51848 - 0.13548 - 0.02290 0.01730  0.00139  0.51928 - 0.02724  0.04391 0.111740  0.01622  0.12164  0.04391 0.111740  0.01637  0.01024  0.04391 - 0.11740  0.01537  0.01024  0.04391  0.01537  0.01024  0.04391  0.01537  0.01024  0.04391  0.01537  0.01024  0.04391  0.01537  0.01024  0.04391  0.01537  0.01024  0.04391  0.01537  0.01024  0.04391  0.01537  0.01044  0.01537  0.01044  0.02569  0.11450  0.02789  0.11444  0.01216  0.00563  0.00790  0.00739  0.112157  0.20330  0.00739  0.112157  0.20330   | 0.14(    | 355)        | ı                | 0.54111          | 1        | •                | •        | •        | 0.12350  | 226   |
| -          | 0.141    | 152         |                  |                  | •        | 0.10950          | •        | •        | 0.02110  | 226   |
| 0.00433       0.52661       -       -       -       0.13100         -0.00494       -       -       0.13615       -       -       0.01730         (-0.3628)       -       -       0.02290       -       -       0.01730         0.00139       0.51948       -       0.02290       -       -       0.11740         0.00266       0.51928       -0.17244       0.04391       -       -       0.11980         0.01627       -       -       -       -       0.01034       -       0.11980         0.01627       -       -       -       -       -       0.00970         (2.0481)       -       -       -       -       0.00970         (1.9296)       -       -       -       -       0.00970         (1.9284)       -       -       -       0.11450         (-0.9493)       -       -       -       0.12157         -       -       -       -       0.20330         (1.1457)       -       -       0.20330  | 0.15(    | 792)        | •                |                  | -0.00078 |                  | •        | •        | -0.00450 | 226   |
| 0.00494       -       -       0.13515       -       -       0.01730         0.00139       0.51948       -       0.02290       -       -       0.11740         0.00266       0.51928       -0.17244       0.04391       -       -       0.11980         0.01622       -       -       -       -       0.11980         0.01537       -       -       -       0.00970         (1.9236)       -       -       -       0.00970         (1.9236)       -       -       -       0.00970         (1.9249)       -       -       -       0.11450         (6.9693)       -       -       -       0.15450         -       -       -       0.15444       -       0.20330         (1.1457)       -       -       0.20330       -       0.20330  | 0.134    | 597)        | 0.00433          | 0.52661 (5.3957) | •        | •                | •        | •        | 0.12100  | 226   |
| 0.00139 0.51948 - 0.02290 0.11740 (0.1070) (5.1282) - 0.12244 0.04391 0.11980 (0.2049) (5.1332) (-1.2700) (0.5091) 0.01024 - 0.11980 (2.0481) 0.01024 - 0.00970 (1.9296) 0.01647 - 0.00970 (1.9296) 0.11450 (-0.5989) (0.02369 0.11447 0.16147 0.12157 0.12157 0.20330 (1.1437) 0.12157 0.12157 0.20330  | 0.14     | _           | -0.00494         |                  | •        | 0.13615          |          | •        | 0.01730  | 226   |
| 0.00266 0.51928 -0.17244 0.04391 0.11980   0.2049) (5.1332) (-1.2700) (0.5091)   0.01622  0.01024   - 0.00970   (2.0481)   0.01024   - 0.00970   (1.9296)   0.0563 0.00790   (1.9296)   0.16147   0.17450   0.16147   0.17450   0.00739   0.12157   0.20330   (1.1637)   0.12157   0.20330   (1.1637)  | 0.137    | 754         | 0.00139          | 0.51948 (5.1282) |          | 0.02290          | •        | •        | 0.11740  | 226   |
| 0.016220.01024 - 0.00970<br>(2.0481)   | 0.137    | 737         | 0.00266          |                  |          | 0.04391          | •        | •        | 0.11980  | 226   |
| 0.01537 0.00563 0.00790 (1.9296) (-0.5989) (-0.5989) (6.9693) 0.116147 0.17450 (7.6144) 0.12157 0.20210 (1.1637) (3.0161)  | 0.136    | 502)        | 0.01622 (2.0481) | 1                | •        | 1                | -0.01024 | ,        | 0.00970  | 226   |
| 0.02369 0.17450<br>(6.9693) 0.16147 - 0.20210<br>0.12157 - 0.20330<br>(1.1637) (3.0161)  | 0.136    | 694<br>156) | 0.01537          | ,                | ı        | ,                | •        | -0.00563 | 0.00790  | 226   |
| 0.00739 - 0.12157 - 0.20330 (1.1637)   | -0.006   | 672<br>197) | 0.02369 (6.9693) |                  | -1       | •                | •        |          | 0.17450  | 226   |
| 0.00739 0.12157 0.20330<br>(1.1637) (3.0161)   | 0.002    | 284         |                  |                  |          | 0.16147          | •        | •        | 0.20210  | 226   |
|  | -0.001   | 101         | 0.00739          | -1               | 1        | 0.12157 (3.0161) | •        | ,        | 0.20330  | 226   |

(Numbers in parantheses are T - Values)

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| Table C·1    | Table C-7  | Table C-13   | Table C-19 | Table C-25   |
|--------------|------------|--------------|------------|--------------|
| October 1981 | April 1982 | October 1982 | Apr 1 1983 | October 1983 |

| TABLE - C.7  | ANALYST INTERCEPT BETA R-S | BII 0.04929 0.15707 0.    | RB1+ 0.12064 0.06129 0. | RBZ 0.11084 0.08903 0.    | RBI 0.15338 0.03132 0. | RB3+ 0.09159 0.08021 0.   | RB4 0.11576 0.06086 0.     | RB5* 0.07974 0.13187 0. (3.131) (5.080) | MB2 0.14304 0.04758 0. (8.681) (2.870) | BI2* 0.14913 0.02671 0. (9.150) (1.571) | NB3 0.12045 0.03555 0. | RB6* 0.09211 0.09466 0. (6.530) (6.530) | 813 <b>0.15012</b> 0.02002 0. (20.627) (2.733) | RB7 0.13002 0.03156 0.       | B14 0.11276 0.06801 0. | 815 0.14936 0.05949 0. (7.592) (3.039) |                        | NB4* 0.12128 0.06720 0. | 1A1* 0.10946 0.07288 0. (11.779) (7.871) | NB5 0.14176 0.04478 0. (17.031) (5.289) |
|--------------|----------------------------|---------------------------|-------------------------|---------------------------|------------------------|---------------------------|----------------------------|---|--|---|------------------------|---|--|------------------------------|------------------------|--|------------------------|-------------------------|--|---|
| _            | _                          |                           |                         |                           |                        |                           |                            | ,                                       | ~                                      |   |                        |   |  |                              |                        |  |                        |                         |  |   |
|              | CASES                      | 137                       | 194                     | 185                       | 302                    | 205                       | 163                        | 92                                      | 294                                    | 183                                     | 161                    | 182                                     | 216  | 224                          | 362                    |  | 154                    | 199                     | 400                                      | 253                                     |
| OCTOBER 1981 | CRSTD1 R-SQUARE            | 0.84557 0.2103<br>(6.101) | 0.12842 0.0027          | 0.25625 0.0934<br>(4.467) | 0.17343 0.0154         | 0.27946 0.0337<br>(2.850) | 0.05827 -0.0021<br>10.810} | 0.74337 0.1269                          | -0.31638 0.0144<br>(-2.295)            | -0.00531 -0.0055<br>1-0.049)            | 0.02896 -0.0045        | 0.44499 0.0638                          | -0.02300 -0.0039<br>(-0.406)                   | -0.06405 -0.0004<br>(-0.954) | 0.11953 0.0079         | 0.62987 0.0709                         | 0.13620 0.0061         | 0.31394 0.0316          | 0.39352 0.0690                           | 0.16568 0.0186                          |
| 0 1          | INTERCEPT                  | 0.16342 (13.838)          | 0.15807                 | 0.17269                   | 0.16886 (27.541)       | 0.14608                   | 0.16361 (28.863)           | 6.14472                                 | 0.23266 - (20.832)                     | 0.17082<br>(20.213)                     | 0.15478 (26.070)       | 0.14631 (15.948)                        | 0.18086 (39.678)                               | 0.16493 (32.055)             | 0.16003                | 0.15726                                | 5 0.15806 (20.345)     | (17.287)                | (25.451)                                 | 131.508)                                |
| p4           | BETA A-SQUARE              | 0.09268 0.1836<br>(5.620) | 0.02375 0.0155          | 0.03481 0.1446            | 0.02059 0.0159         | 0.04252 0.0579            | 0.01963 0.0235             | 0.08430 0.1402<br>(3.980)               | -0.00523 -0.0031<br>(-0.322)           | 0.01687 0.0054                          | 0.01095 0.0028         | 0.06715 0.1386 (5.488)                  | 0.01002 0.0057                                 | -0.00415 -0.0031<br>(-0.567) | 0.02454 0.0301         | 0.09237 0.1098<br>(5.259)              | 0.02295 0.0225 (2.128) | 0.05204 0.0684          | 0.05712 0.1081                           | 0.01961 0.0203                          |
| TABLE - 3    | INTERCEPT                  | 0.13906                   | 0.14467                 | 0.15817                   | 0.16214 (18.501)       | 0.12605                   | 0.14887                    | 0.11801                                 | 0.21305 -                              | 0.15397                                 | 0.14634 (16.705)       | 0.11481 (9.684)                         | 0.16917  | 0.16417                      | 0.14510 (20.443)       | 6.11451                                | 0.14592                | 0.13237                 | 0.12415 (15.049)                         | 0.16537 (21.173)                        |
|              | AMALYST                    | 118                       | RB1+                    | RB2                       | HB1                    | RB3*                      | <b>RB</b>                  | R85*                                    | 182                                    | B12*                                    | MB3                    | RB6*                                    | 813  | RB7                          | BIA                    | 815                                    | 888                    | WB/*                    | IA!                                      | <b>FB</b>                               |

214

-0.00513 -0.0047 (-0.095)

0.17019 -

0.0295

168

0.17887 -0.05813 -0.0049 117.744) (-0.440)

0.0087

296

0.08592 -0.0018

0.18289

0.0239

176

0.0375

0.20189

0.13931 (23.804)

0.0679

182

0.0887

0.55477

0.14093

0.1875

218

0.0498

0.20927

0.14458

0.0795

364

0.0541

0.34111

0.15249 (25.136)

0.1288

202

0.0510

0.51054

0.16720

0.0388

148

0.0779

0.41281

0.14657

0.1178

28

0.0199

0.27270

0.16588

0.0785

402

0.0740

0.14818

0.1320

256

0.0642

0.28027

0.0957

CASES

R-SQUARE 0.4176

CRSTD1 ----1.28060 (9.925)

R-SQUARE 0.3712

1982

APRIL

163

0.0657

0.40116

0.14906

0.0933

175

0.2717

0.60925

0.15030 (25.667)

0.3787

287

0.0024

0.14743

0.17258

0.0118

187

0.0843

0.44667 (4.258)

0.13492

0.1554

162

0.0913

0.34137

0.14842 (22.624)

0.1504

0.2259

0.1793

0.94769

0,13659 (8,245)

| L 1983       | ITD1 R-SQUARE CASES       | .9761 0.0479 157 ·                      | 0.0194 174                                   | 0.0133 292                                   | 7180 0.1339 181<br>370)                    | 0.0028 156                               | 0.1035 69                                 | .045) -0.0034 294                           | 0.0366 157                                | 03479 -0.0040 162<br>.597)                  | .854) 0.0389 178<br>.854)                  | 06470 0.0030 222<br>1.293)                 | 09120 0.0156 212<br>.0833                  | .824) 0.0194 354                           | , | 05362 -0.0047 150<br>.554)                 | 01679 -0.0051 192<br>.148)                 | -0.03302 -0.0020 406<br>(-0.417)              | 01988 -0.0036 241        |
|--------------|---------------------------|---|--|--|--|--|---|---|---|---|--|--|--|--|---|--|--|---|--------------------------|
| APRIL        | R-SQUARE INTERCEPT CRSTD1 | 0.0613 0.13972 0.34417 (14.825) (2.976) | 0.0486 0.15126 -0.07045<br>(53.484) (-2.102) | 0.0128 0.17420 -0.22468<br>(18.718) (-2.215) | 0.1477 0.11064 0.57180<br>(12.136) (5.370) | -0.0002 0.13823 0.07220 (27.372) (1.200) | 0.1063 0.13815 0.66715<br>(7.675) (2.975) | -0.0029 0.15246 0.00525<br>(14.793) (0.045) | 0.0012 0.18081 -0.35446 (16.161) (-2.633) | -0.0015 0.12769 0.03479<br>(25.241) (0.597) | 0.0882 0.13772 0.30346<br>(15.957) (2.856) | -0.0045 0.15604 -0.06470 (35.575) (-1.293) | 0.0167 0.13182 0.09120<br>(35.760) (2.083) | 0.0570 0.14019 0.18847<br>(23.653) (2.824) |   | 0.0073 0.14007 0.05362<br>(16.423) (0.554) | 0.0131 0.16960 0.01679<br>(17.193) (0.148) | -0.0023 0.14581 -0.03302 (20.357) (-0.417     | -0.0029 0.16089 -0.01988 |
| TABLE - C 19 | ST INTERCEPT BETA         | RB1+ 0.11124 0.05851 0                  | RB2 0.16010 -0.01499 0 (34.030) (-3.138)     | HBI 0.18896 -0.03451 0                       | RB3* 0.06874 0.09119 0                     | RB4 0.13521 0.00918 -0                   | RBS* 0.10089 0.09302 0                    | MB2 0.14631 0.00669 -0<br>(8,221) (0.375)   | 812* 0.17334 -0.02215 0                   | MB3 0.12294 0.00783 -0<br>(13.766) (0.868)  | RB6* 0.10250 0.06211 (                     | 813 0.15011 0.00044 -(                     | R87 0.12602 0.01366 (                      | 814 0.11014 0.04680 (                      |   | RBB 0.12368 0.02123 (                      | M84* 0.13966 0.03178 (8.302) (1.883)       | IA1* 0.14571 -0.00279 -(<br>(11.828) (-0.228) | - 94400 O- 14741 A 28M   |

| CASES     | <u> 251</u> | 164     | 180      | 276     | 183     | 158              | 78              | 301              | 153             | 168     | 182     | 224              | 221     | 365              |     | 150     | 199                                     | 407              | 258              |
|-----------|-------------|---------|----------|---------|---------|------------------|-----------------|------------------|-----------------|---------|---------|------------------|---------|------------------|-----|---------|---|------------------|------------------|
| 5         | -           | -       | =        | 7       | =       | =                |                 | ñ                | =               | -       | =       | 73               | 8       | ы                |     | =       | -                                       | 4                | 2                |
| R-SQUARE  | 0.3677      | 0.0071  | -0.0053  | 0.0007  | 0.1288  | 0.0169           | 0.1583          | -0.0023          | -0.0032         | 0.0667  | 0.0860  | 0.0020           | 0.0638  | 0.0772           | •   | 0.0159  | -0.0048                                 | -0.0015          | 0.1328           |
| CRSTD1    | 0.88214     | 0.18393 | 0.00938  | 0.12692 | 0.55223 | 0.11492          | 0.83716 (3.934) | 0.06896          | (-0.719)        | 0.25272 | 0.49164 | -0.06246         | 0.19935 | 0.41832          |     | 0.20601 | -0.02504                                | 1-0.6421         | 0.46881          |
| INTERCEPT | 0.10124     | 0.15533 | 0.15269  | 0.16016 | 0.11882 | 0.14113 (28.929) | 0.13169         | 0.17346 (16.489) | 0.17125         | 0.12759 | 0.13123 | 0.16227          | 0.12680 | 0.14054 (21.853) |     | 0.14561 | 0.17624                                 | 0.15679 (24.076) | 0.14473 (23.258) |
| R-SQUARE  | 0.3963      | 0.0112  | -0.0046  | 6900.0  | 0.1834  | 0.0502           | 0.1611          | 0.0084           | -0.0066         | 0.1038  | 0.1672  | -0.0037          | 0.0777  | 0.1628           | •   | 0.0518  | 0.0211                                  | -0.0006          | 0.1702           |
| BETA      | 0.15333     | 0.03387 | -0.00271 | 0.03316 | 0.11061 | 0.03090          | 0.13280         | 0.03913          | 1-0.0038        | 0.05332 | 0.10484 | 0.00377 (0.431)  | 0.03493 | 0.10085          | ,   | 0.05580 | 0.04196                                 | 0.01100          | 0.08962          |
| INTERCEPT | 0.02355     | 0.13678 | 6.15609  | 0.13779 | 0.05442 | 0.12007          | 0.06657         | 0.14043 (6.751)  | 0.16272 (6.812) | 0.09565 | 0.06815 | 0.15347 (17.640) | 0.10849 | 0.07532 (6.321)  | •   | 0.10742 | 0.13279                                 | 0.14181          | 0.09489          |
| AMAL YST  | 118         | RB1+    | RB2      | 18 X    | RB3*    | RB4              | RB5*            | M92              | BI2*            | MB3     | R86*    | 813              | . RB7   | \$18             | 812 | R88     | *************************************** | IA1*             | MBS              |

OCTOBER 1982

TABLE - C 13

|           | CASES     | 157     | 174              | 300              | 175     | 68               | 89              | 296             | 136               | 162              | 174              | 189              | 203              | 340              | •   | #               | 139             | 402      |
|-----------|-----------|---------|------------------|------------------|---------|------------------|-----------------|-----------------|-------------------|------------------|------------------|------------------|------------------|------------------|-----|-----------------|-----------------|----------|
| 1983      | R-SQUARE  | 0.0261  | -0.0038          | 0.0052           | 0.1633  | -0.0114          | 0.1877          | -0.0012         | 0.0486            | 0.0984           | 0.0155           | 0.0112           | 0.0160           | 0.0066           |     | -0.0052         | 0.0015          | -0.0001  |
| OCTOBER   | CRSTD1    | 0.26227 | 0.02234          | -0.07955         | 0.63961 | 0.00492          | 0.75812 (4.059) | 0.09055         | -0.47931 (-2.811) | 0.23052          | 0.19264          | -0.08418         | 0.09882          | 0.12845          |     | 0.05116 (0.513) | 0.15070         | -0.07557 |
|           | INTERCEPT | 0.14208 | 0.14726 (45.631) | 0.16140 (34.965) | 0.10392 | 0.14291 (23.504) | 0.12668         | 0.15065         | 0.18859           | 0.11773 (25.113) | 0.14201 (17.213) | 0.15368 (36.566) | 0.13422 (33.629) | 0.14065 (22.415) | •   | 0.13788         | 0.15441         | 0.14528  |
|           | R-SBUARE  | 0.0274  | -0.0058          | 0.0029           | 0.1764  | -0.0041          | 0.1623          | 0.0004          | 0.0410            | 0.0672           | 0.0481           | -0.0053          | 0.0174           | 0.0336           |     | -0.0031         | 0.0225          | -0.0014  |
| 55        | BETA      | 0.04404 | 0.00049          | -0.01138         | 0.10705 | 0.00979          | 0.10854         | 0.01966 (1.057) | -0.06600          | 0.03158          | 0.04738          | 0.00002          | 0.01551          | 0.03984          | •   | 0.01220         | 0.04776 (2.042) | -0.00856 |
| TABLE - C | INTERCEPT | 0.12119 | 0.14863 (25.934) | 0.16565          | 0.05284 | 0.13414 (11.654) | 0.08266 (2.928) | 0.13912         | 0.21305           | 0.10631          | 0.11235          | 0.14649          | 0.12735          | 0.11260          | •   | 0.13027         | 0.11973         | 0.14713  |
|           | ANAL YST  | RB1+    | RB2              | MB1              | RB3*    | R84              | RB5*            | MB2             | P124              | MB3              | ₽ <u>₽</u> 6*    | P13              | RB7              | B14              | 815 | RB8             | MB4e            | IA1*     |

